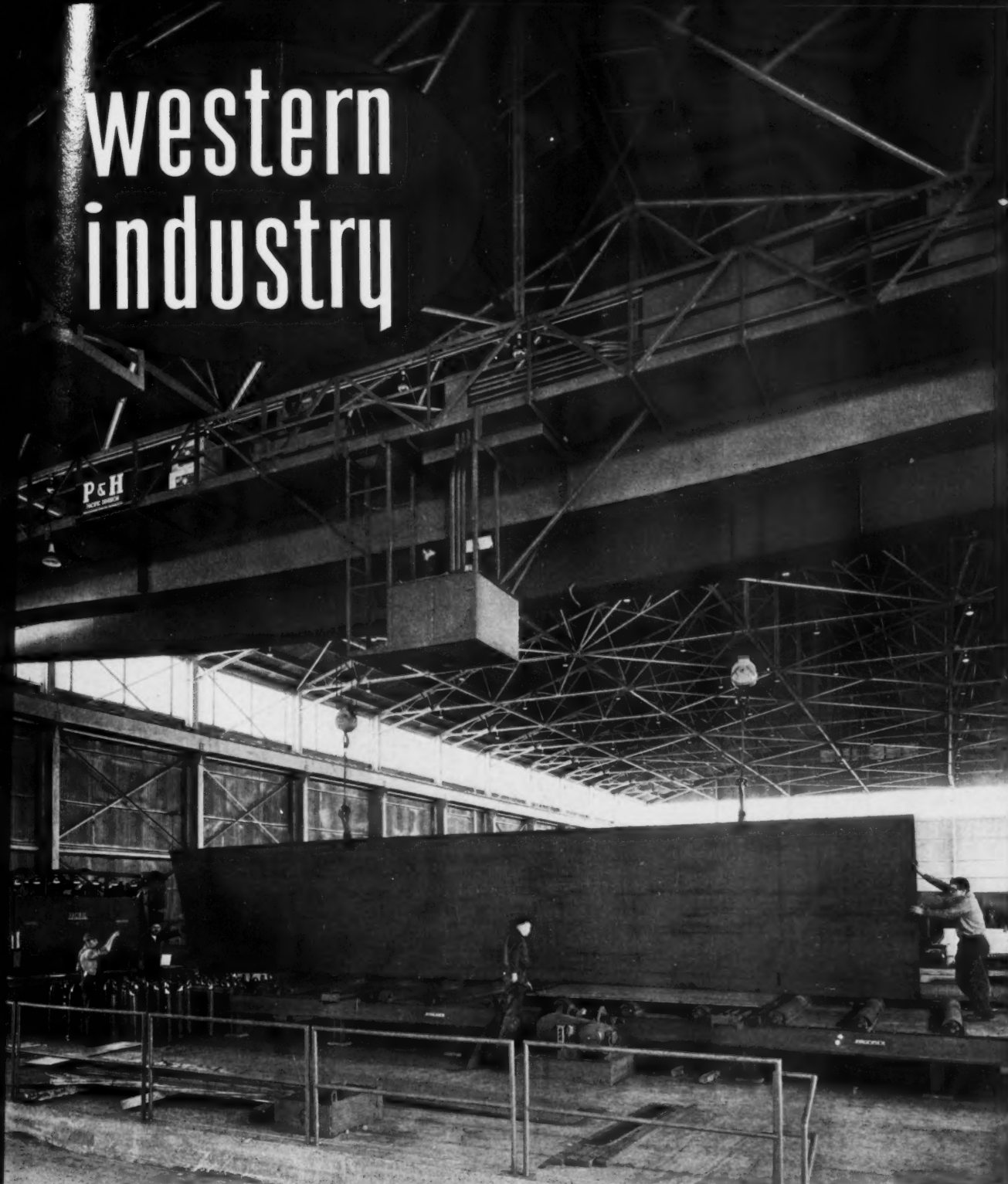


western industry



Crane lowers 40x8 ft. steel plate on power conveyor for shearing. See page 37.

FEBRUARY 1961



featuring: **MATERIAL HANDLING SHOW PREVIEW**

special: **CRANE HANDLING OF HEAVY STEEL PLATE**
LITERATURE ON CRANES, CONVEYORS, HOISTS

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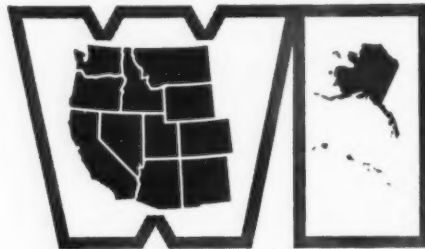
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WESTERN INDUSTRY/FEBRUARY 1961

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SERVES THE THIRTEEN WESTERN STATES

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COVER PHOTO		<i>CRANE handles 40-ft. length of plate quickly and with ease at Earle M. Jorgensen Co., Los Angeles. Here plate is lowered on power conveyor and will be fed to power shear for cutting. Unit is one of two P&H Harnischfeger overhead cranes with a 116-ft. span used for handling plate.</i>
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WESTERN INDUSTRY publishes a Southwest Zoned Edition which goes to readers in Southern California, Arizona and Nevada. Any gap in page numbering is due to differences between the Southwest edition and the regular edition.

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Published monthly by
KING PUBLICATIONS
609 Mission Street
San Francisco 5, Calif.
Phone YUkon 2-4343

Los Angeles Office
The Plan Room Building
1417 Georgia St.
Los Angeles 15, Calif.
Phone Richmond 9-3278

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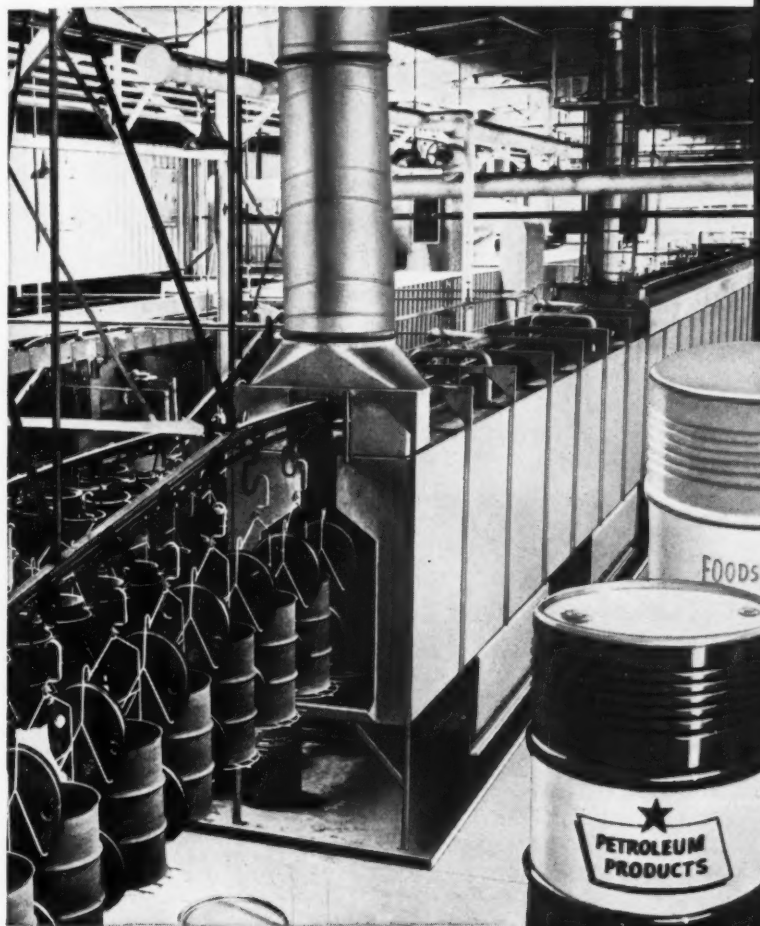
Subscription rate: \$10.00 per year. Cost per single copy, \$1.00

Accepted as Controlled Circulation Publication at Portland, Oregon. Postmasters: Please send Notice 3579 to Western Industry, 609 Mission Street, San Francisco 5, California. For change of address write Circulation Dept., 609 Mission St., San Francisco 5, Calif.

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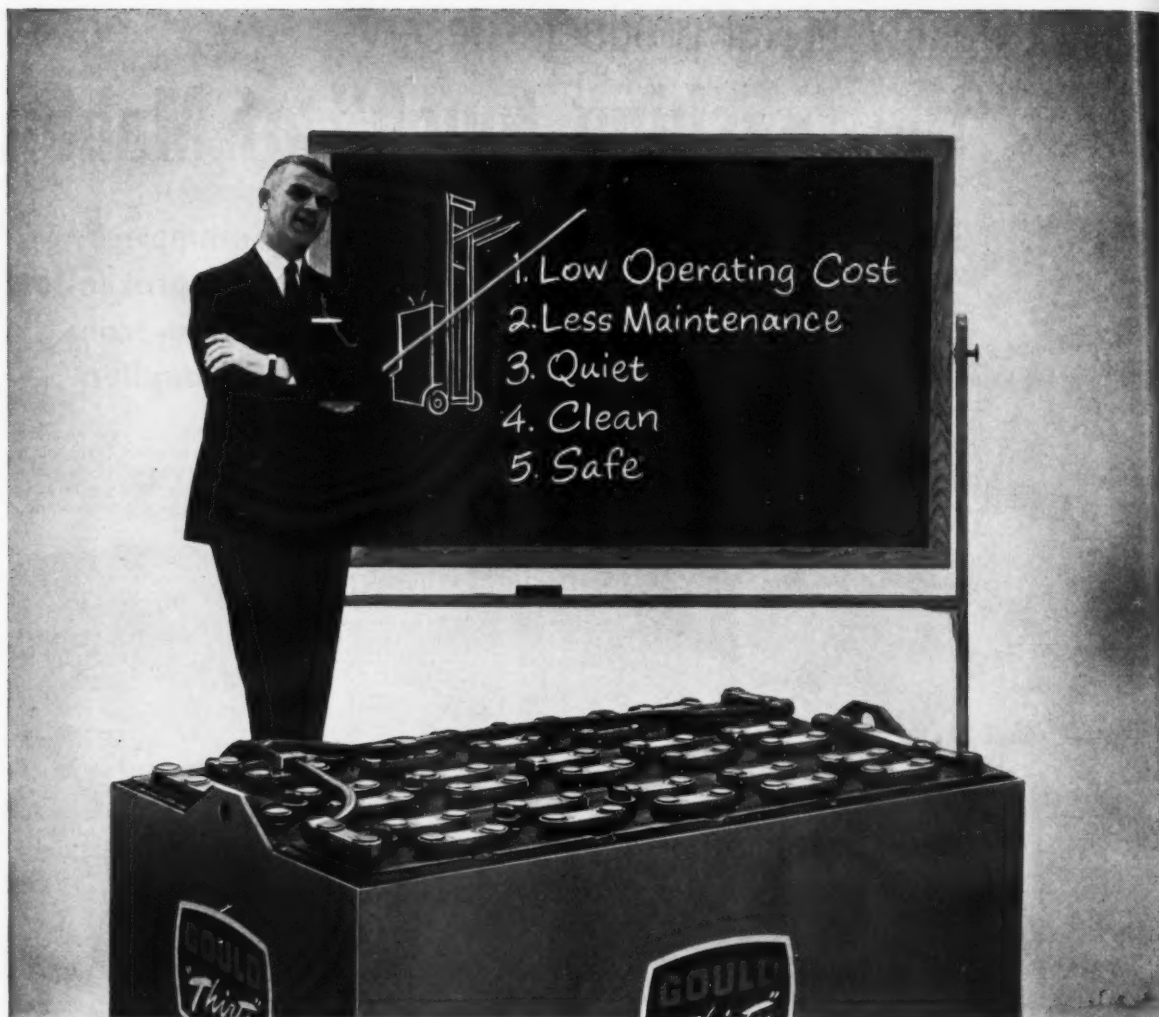
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Why Users Prefer Electric Trucks Powered by Gould Batteries

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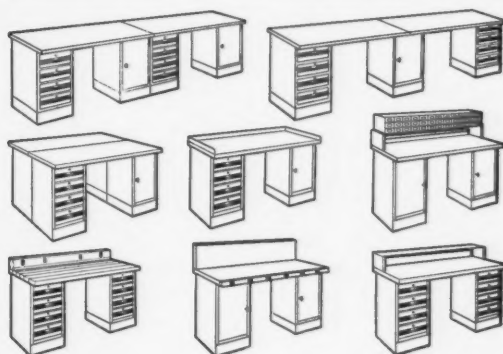
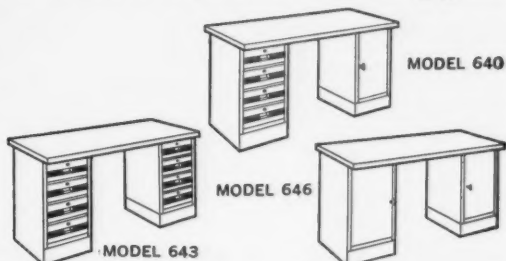
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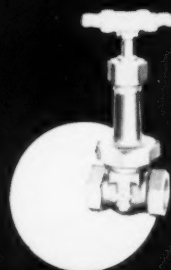
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POWELL — world's largest family of valves . . . Valves for controlling almost every industrial flow requirement . . . water, oil, gas, air, steam, corrosive fluids, atomic power, missile and rocket fuels.

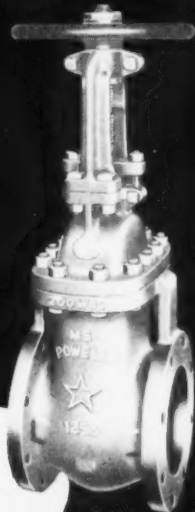
Powell manufactures valves in most metals . . . in many designs . . . for many temperatures and pressure requirements. And Powell maintains large factory and distributor stocks,

so orders for regular valves can be filled promptly, thereby preventing costly operational delays or shut downs.

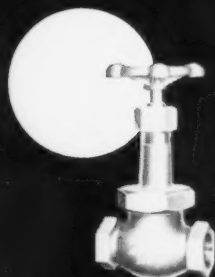
One quick call to the Powell valve distributor in the major city nearest you or to The Wm. Powell Company will fill your valve needs. And Powell with 115 years of industrial valve manufacturing know-how will also solve your flow control problems.



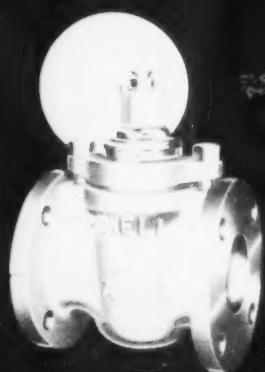
200-pound Bronze Gate Valve, union bonnet, inside screw rising stem, renewable nickel-bronze disc—Fig. 375. Sizes $\frac{1}{4}$ " through 3". Also available with flanged ends, sizes $\frac{3}{4}$ " through 3".



125-pound Iron Body Bronze Mounted Gate Valve. Outside screw rising stem and yoke. Flanged Ends—Fig. 1793. Sizes, 2" through 30". Also furnished in All Iron.



200-pound Bronze "W.S." Globe Valve—Fig. 2608. Exclusive Powell features make possible maximum flow with minimum pressure drop and turbulence. 500 Brinell stainless steel disc and seat. Sizes $\frac{1}{4}$ " to 3".



175-pound W.O.G. Semi-Steel Lubricated Plug Valve. Wrench operated. Fig. 2201—flanged end, sizes 1" through 4". Also available with screwed ends.

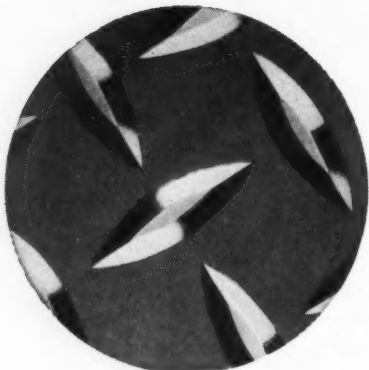
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POWELL PRECISION VALVES

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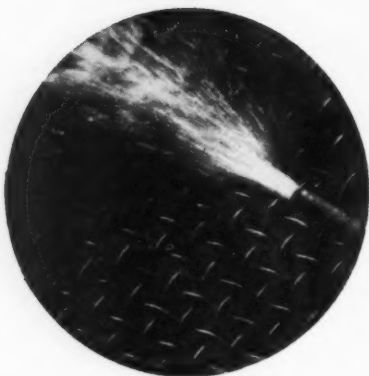
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Air Cooled Heliweld Holder →



Highest amperage yet in an Air Cooled Heliweld Holder

New Airco H16-A. Only 2 7/8" interference dimension and no water system! The new Airco H16-A Heliweld Holder, for tungsten-inert-gas welding, is the only air cooled holder available with 160 amps AC or DC — and it's the easiest to handle. Here's the holder for work in tight spots!

The Airco H16-A is a gem for jobs requiring rapid, clean, smooth welds on thinner gauge aluminum, alloy and stainless steels, brass, cast iron, copper, magnesium, molybdenum, nickel, silver, and many others.

Airco produces everything you require for manual and automatic Heliwelding. The line includes the H10 air cooled, H20 water cooled, H35 water cooled, and H50 water cooled Heliweld Holders, and automatic machine heads.

Look in your Classified Telephone Directory, under "Welding Equipment and Supplies," for your nearest Authorized Airco Distributor. Or phone your local district office.



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A division of Air Reduction Company, Incorporated

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The Seal Won't Blow!

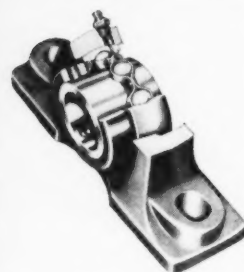
These pillow blocks are equipped with metal backed synthetic seals that are locked into position. They can't blow out when the bearing is lubricated with a grease gun. And dust and dirt can't get in.

Because these bearings are assembled, lubricated and sealed at the factory they go onto the shaft in perfect condition. And they *continue* to operate with the fine precision built into them—unaffected by external conditions.

Thousands of users know this from experience—users who depend upon these bearings for high quality anti-friction service at very moderate cost.

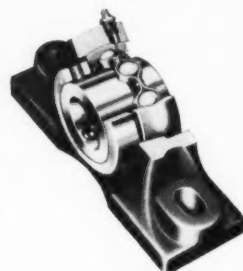
The Dodge SC and SCM line includes not only pillow blocks, but flange bearings, cylindrical units, hanger bearings and screw conveyor hanger bearings. Ask your Dodge Distributor—or write us for complete technical bulletin.

Dodge Manufacturing Corporation, 6600 Union Street, Mishawaka, Indiana



**DODGE SC
FOR NORMAL DUTY**

Rugged one-piece semisteel housing, deep groove ball bearing, long inner race, fully self-aligning. $\frac{1}{2}$ " to $2\frac{7}{16}$ ".



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FOR MEDIUM DUTY**

Even heavier housing than in SC, deep groove ball bearing, long inner race, fully self-aligning. $1\frac{1}{16}$ " to $3\frac{1}{2}$ ".

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DODGE
of Mishawaka, Ind.

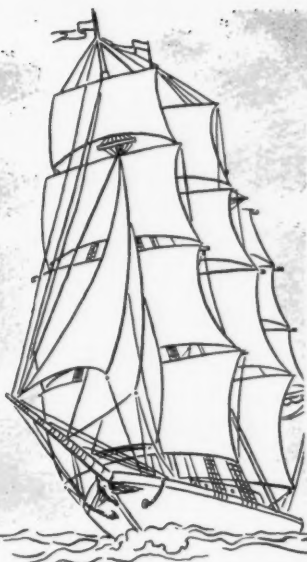
CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge he can give you valuable assistance on new cost-saving methods.

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WESTERN INDUSTRY/FEBRUARY 1961

Why Rust-Oleum is different—

*and what this difference,
backed by 35 years of industry proof,
means to you!*



*A Sea Captain
developed it . . .
Industry
proved it!*

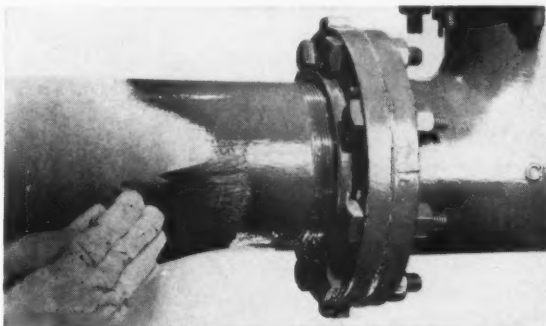
The original Rust-Oleum formula was developed nearly fifty years ago by Sea Captain Robert Fergusson, who became intrigued with the rust-stopping qualities of fish oil early in his career. Creating a special treatment for the fish oil, he used the specially-processed fish oil as the vehicle in combination with fine rust-inhibiting pigments. The result? A coating that actually stopped rust when applied directly over sound rusted surfaces, after scraping and wirebrushing to remove rust scale and loose rust. Possible, because the specially-processed fish oil penetrated the rust to bare metal. This was the birth of Rust-Oleum's exclusive 769 Damp-Proof Red Primer.

PROVED THROUGHOUT INDUSTRY FOR OVER 35 YEARS

Today, Rust-Oleum in its many systems and colors, has been proved throughout industry for over thirty-five years. This proof by leading industrial users is your assurance of savings in time, money, and metal. Economies made possible by the fact that Rust-Oleum 769 Damp-Proof Red Primer goes right over the sound rusted metal—usually eliminating costly surface preparations. And Rust-Oleum, in its various systems, resists rain, sun, fumes, heat, weathering, chemicals, etc., for lasting beauty over the years.

RUST-OLEUM NEW COLOR HORIZONS SYSTEM

The Rust-Oleum New Color Horizons System introduces a new coating concept to industry. It combines four important factors: (1) the ability to stop rust, (2) smart, modern color harmony, (3) the durability to last and last, (4) ease of application that saves time, money, and metal. See how this system can bring lasting beauty to your plant, machinery, equipment, pipes, tanks, structural steel, fences, etc. Write for complete information or contact your nearby Rust-Oleum Industrial Distributor. He maintains complete stocks for prompt service.



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There are imitations,
but only *one* Rust-Oleum.
It is distinctive as
your own fingerprint.

STOPS RUST!®

ATTACH TO YOUR LETTERHEAD

Rust-Oleum Corporation
2494 Oakton St., Evanston, Illinois

Please send me the following at no cost or obligation:

- ☐ New Color Horizons Systems Catalog featuring 110 actual color standards and 69 photo applications.
- ☐ Free test sample of Rust-Oleum 769 Damp-Proof Red Primer to be applied over sound rusted surface.
- ☐ Results of radioactive tracing study on Rust-Oleum fish oil penetration.

western
industry

W western meetings

Western Metal Congress March 20-24

WITH ANNOUNCEMENT that programs by five participating technical societies have been formalized and that about 250 firms have signed for exhibition space, the 12th Western Metal Congress is rapidly nearing final planning stages in preparing to host industrial executives, engineers, production and purchasing personnel in Los Angeles, March 20-24.

Firms will arrange their exhibits in Pan Pacific Auditorium, 7600 Beverly Blvd., and a 32-session technical program will be staged at the Los Angeles Ambassador Hotel, 3400 Wilshire Blvd.

Bringing technical information and production tips on various phases of metalworking including testing, alloying, heat treating, welding, cutting, burnishing, cleaning, grinding and boring will be panelists from the sponsoring American Society for Metals, Metallurgical Society of the AIME, Society for Nondestructive Testing, Society of Aerospace Materials and Process Engineers and the American Society for Testing Materials.

No charge will be made to enter ASM sessions at the Ambassador and admission-invitations, entitling free Pan Pacific registration, will be sent to thousands of Western industrial representatives.

According to Dan O'Halloran, program co-chairman, Society for Nondestructive Testing, half day sessions on all five days will cover missile propellants and hardware, electronic components and testing in aerospace, shipbuilding, and petrochemical industries.

O'Halloran announced that the SNT luncheon and honor session will be slated March 22.

American Society for Testing Materials, through program chairman Roy E. Paine, announces they will hold their sessions during the morning of March 22. American Institute of Mining, Metallurgical and Petroleum Engineers has planned several sessions.

ASM managing director, Allan Ray Putnam indicates ASM sessions will cover metals research, process metallurgy, value engineering, lab methods, heat treating, electrode melting and advance design.

Society of Aerospace Material and Process Engineers, says G. E. Williams, program chairman, will hold meetings covering space age materials, processes and research developments.

A trio of events is scheduled under direction of the hosting Los Angeles Chapter ASM, kicking off with a luncheon on March 20 at the Ambassador to be addressed by Maj. Gen. O. J. Ritland, commander, Air Force Ballistic Missile Div., ARDC, Inglewood, Calif.

Following this will be a classified session led by members of the U. S. Air Force and admitting Congress participants only if they have had prior security clearance.

The third event will be presented by Aerospace Corp. on



GESTURING WITH TOOLS of the trade exposition planners wield slide rule and gage during sessions held to schedule Metal Show events. Shown from left, E. T. Bergquist, Western Gear Corp., arrangements chairman; Charles H. Dickson, Alloy Fabricators, Inc., secretary of Los Angeles Chapter, ASM; T. C. DuMond, Metals Congress manager, ASM, Metals Park, Novelty Ohio; and Leo Gatzek, Aerospace Corp., coordinator of technical sessions for his firm and the Air Force.

March 21 and will be devoted to discussion of new metals for aircraft production.

Making its debut at the show will be the "Informa-Badge," a combination identity badge and imprinter for inquiry use. Carried in a clear plastic badge holder on the delegate's coat, the badge can be slipped out and used in an imprinting device to record the inquirer's name and firm address.

Stressing the regional aspect of the show is the theme of the Congress and Exposition, "Idea Center for Industry West."

ASME Lecture Series

THE 19TH SEMI-ANNUAL Industrial Engineering and Management Lecture Forum Series, sponsored jointly by the Industrial and Production Engineering Division of the American Society of Mechanical Engineers, Southern California Section, and the University of California Extension, has been scheduled on the Westwood Campus March 2-May 10.

Problems involved in engineering and management will be discussed by outstanding professional authorities in six sessions to be held March 2, March 15, March 29, April 12, April 26 and May 10 at Room 147, Business Administration Building, at 8:00 p.m. There is no admission charge.

On March 1, C. W. Planje, President and Chairman of the Board, Gladding-McBean & Co., Glendale, will discuss "The Engineer Enters Management." Henry C. Keck and Burnie M. Craig, partners, Henry Keck Associates, South Pasadena, will speak on "Product Development—Design and Styling" March 15. They will be followed by Ted W. Johnson, Senior Vice President, Security First National Bank, Los Angeles, speaking on "Planned Growth Challenges Management."

On April 12, Edward Stainbrook, Ph.D., M.D., will discuss "Motivation, Morale and Productivity in Organiza-

(Continued on page 16)



Towmotor backs up outstanding performance



with Towmotor dependable service

When you purchase Towmotor equipment you can be sure it will never be out of service very long... for two very good reasons:

1. Towmotor fork lift trucks are built to last, and built to perform continuously.
2. When needed, you get fast and skillful repair and maintenance service from your local dependable Towmotor representative.

Your Towmotor representative will never let downtime cut into the money you *save* by owning a Tow-

motor fork lift truck! That's why Towmotor customers keep buying Towmotor equipment. Ask for complete information on Towmotor equipment and Towmotor Preventive Maintenance Service. Write Towmotor Corporation, Cleveland 10, Ohio.



FORK LIFT TRUCKS, CARRIERS AND TRACTORS SINCE 1919

*Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

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MEETINGS

(Continued from page 14)

tional Life." Dr. William Jacobi, Vice President and General Manager, Guidance and Control Systems Division, Litton Systems, Inc., Beverly Hills, will present the fifth talk in the series, "Foreign Production of Complex American-Developed Equipment" on April 26.

A three-man panel of N. A. Lamberti, School of Business, University of Southern California, Los Angeles; D. G. Malcolm, Vice President, Operations Research, Inc., Santa Monica, and Austin Weston, Engineering Manager, Times-Mirror Press, Los Angeles, will close the series on May 10 discussing "Industry, the Industrial Engineer and the Changing Economy."

Electrical Maintenance Conference

THE SEVENTH ELECTRICAL Maintenance Conference sponsored by The Electrical Maintenance Engineers Association of California will be held at the University of Southern California in Founders Hall on March 28, 29 and 30, 1961. Plant maintenance personnel, plant engineering and plant management as well as suppliers in allied manufacturing fields will be welcomed to the three-day conference on electrical maintenance topics. The Conference Committee is Co-Chairmanned by Robert R. Procter, Larsen-Hogue Electric Co., and John Horsburgh, Kaiser Steel Corp.

Members of the Committee are as follows: Charles M. Tabor, Larsen-Hogue Electric Co., program chairman; Lloyd A. Gates, Department of Water and Power, arrangements chairman; Charles W. Doane, Larsen-Hogue Electric Co., publicity and attendance chairman; Richard W. Fletcher, Fletcher Electrical Specialty Co., banquet chair-

man; Paul H. Henrichs, Southern California Edison Co., table top exhibits chairman; Richard B. Hatfield, Southern California Edison Co., plant tour chairman; William R. Paluska, A. C. Martin and Associates, finance chairman; and Walter J. Collins, Department of Water and Power, registration chairman.

Computer Conference Plans Finalized



ARRANGEMENTS COMMITTEE CHAIRMEN for the Western Joint Computer Conference discuss final plans for the May 9-11 meeting to be held at the Ambassador Hotel in Los Angeles. Over 2,000 registrants are expected to attend the 9th annual conference and view more than 90 industry exhibits. Left to right, standing: John Whitlock, exhibits management; Santo Lanzarotta, public relations chairman, DATAMATION Magazine; Smil Ruhman, associate program chairman, Packard Bell Computer Division; L. C. Hobbs, printing chairman, Aeronutronic Division of Ford Motor Co.; Marvin Howard, registration chairman, Thompson Ramo Wooldridge, Inc.; William Speer, finance chairman, Norden Division of United Aircraft Corp.; seated, left to right, J. D. Madden, associate program chairman, System Development Corp.; R. H. Hill, exhibits chairman, Thompson Ramo Wooldridge, Inc.; Dr. R. W. Rector, conference administrator, Space Technology Laboratories; Dr. Walter F. Bauer, general chairman of the 1961 meeting, Thompson Ramo Wooldridge, Inc.; Keith Uncapher, conference vice chairman, The Rand Corp., and R. D. Aeder, publications chairman, IBM Corp.

Calendar of Western Meetings

Feb. 20-22 — WINTER MEETING, PLUMBING BRASS INSTITUTE. Riviera Hotel, Palm Springs, Calif. Plumbing Brass Institute.

Feb. 22-24 — MATERIAL HANDLING INSTITUTE PACIFIC COAST SHOW. Cow Palace, San Francisco. Material Handling Institute.

Feb. 26-Mar. 1 — PACIFIC ELECTRONIC TRADE SHOW. Great Western Exhibit Center, Los Angeles.

Mar. 12-16 — ASME AVIATION CONFERENCE. Statler Hilton Hotel, Los Angeles. American Society of Mechanical Engineers.

Mar. 16-17 — CONFERENCE ON DATA PROCESSING PROBLEMS. Numerical Analysis Laboratory, University of Arizona, Tucson, Ariz.

Mar. 20-24 — WESTERN METAL EXPOSITION AND CONGRESS. Pan-Pacific Auditorium, Los Angeles, Calif. American Society for Metals.

Mar. 23-25 — MEETING OF AMERICAN MACHINE TOOL DISTRIBUTORS ASSOCIATION. Mark Hopkins Hotel, San Francisco. American Machine Tool Distributors Ass'n.

Mar. 27-29 — ABWA SHOW OF 1961. Riviera Hotel, Las Vegas, Nevada. American Bottled Water Association.

Mar. 28-30 — SEVENTH ELECTRICAL MAINTENANCE CONFERENCE. University of Southern California, Founders Hall, Los Angeles. Electrical Maintenance Engineers Association of California.

Apr. 20-21 — RAILROAD CONFERENCE. Sir Francis Drake Hotel, San Francisco. Jointly sponsored by American Society of Mechanical Engineers and American Institute of Electrical Engineers.

Apr. 20-21 — 18th ANNUAL WESTERN SECTION CONFERENCE, SOCIETY OF THE PLASTICS INDUSTRY, INC. Hotel del Coronado, Coronado, Calif. Society of the Plastics Industry, Inc.

May 8-12 — CASTINGS CONGRESS. Brooks Hall, San Francisco. American Foundryman's Society.

May 9-11 — WESTERN JOINT COMPUTER CONFERENCE. Ambassador Hotel, Los Angeles. Sponsored by National Joint Computer Committee formed by Institute of Radio Engineers, American Institute of Electrical Engineers, Association for Computing Machinery.

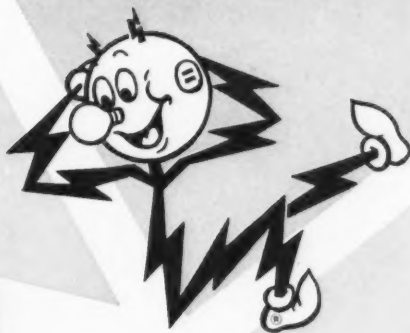
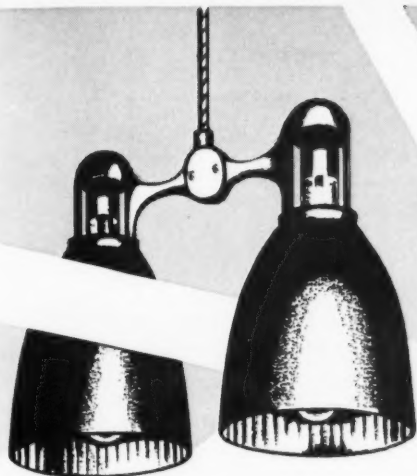
June 11-15 — SUMMER ANNUAL MEETING OF ASME. Statler Hilton Hotel, Los Angeles. American Society of Mechanical Engineers.

June 28-30 — INTERNATIONAL TRUCK, TRAILER & EQUIPMENT SHOW. Brooks Hall, San Francisco. California Trucking Associations, Inc.

June 28-30 — 2nd JOINT AUTOMATIC CONTROL CONFERENCE. University of Colorado, Boulder, Colorado. Sponsored by ISA, AIChE, AIEE, ASME, IRE.

Aug. 22-25 — 1961 WESTERN ELECTRONIC SHOW & CONVENTION. Cow Palace, San Francisco. West Electronic Manufacturers Association.

(Continued on page 18)



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Modern plants requiring unusually high ceilings are now killing shadows and throwing adequate light on work areas with color-improved, high-intensity mercury lamps. Case in point: Pyromet Company in San Carlos. Good lighting is vital here — where missile parts demand sharp visual inspection and accurate instrument reading. Mercury lamps — from a 23' ceiling — make the job practically mistake-proof!

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18

MEETINGS

(Continued from page 16)

Foundry Society Will Hold Technical Congress

THE AMERICAN FOUNDRYMEN'S SOCIETY announces a change in plans of an exposition originally scheduled to be held at San Francisco next May. Instead, the Society will stage, in San Francisco in May, its 65th technical Castings Congress as one of the largest technical symposia on foundry practice ever held. Over 80 papers covering all phases of metal castings technology have been definitely committed for 1961 and officials are confident that more than 100 papers will finally be presented.

Requirements of aircraft and missiles manufacturers will play a prominent part at the 1961 Castings Congress in San Francisco, May 8-12, the first such national Congress ever held on the West Coast. Of the more than 80 papers already committed, many deal with technical advancements in the die casting and light metals fields. The entire range of cast metals will be covered, including steel, gray iron, ductile iron, brass and bronze and malleable iron.

Automotive Control Conference Slated For June 28 In Denver

THE SECOND JOINT Automatic Control Conference will be held on the University of Colorado campus, Boulder, Colo., June 28-30, 1961. It is sponsored jointly by ISA, AIChE, AIEE, ASME and IRE, and is the nation's only annual conference devoted entirely to technical discussions of automatic control. Session categories are expected to include process dynamics; techniques of control system theory; adaptive control; new components; systems testing and others.

A call for papers has been issued by Prof. H. M. Paynter, Mechanical Engineering Dept., Massachusetts Institute of Technology, the 1961 General Program Chairman. All authors are asked to send brief abstracts promptly, with a rough draft of the entire paper before the end of the year.

Laboratory Head Receives Award From American Institute of Chemists

DR. ROBERT W. TRUESDAIL has been awarded the American Institute of Chemists' 1960 Honor Scroll for "meritorious services to the profession of chemistry."

Addressing some 200 members of AIC's Western chapter, the founder and president of Truesdail Laboratories termed the independent scientific laboratory profession "as American as skyscrapers, malted milk shakes and hot dogs."

"If it had not developed spontaneously," he said, "it would have to be created now, for without such organizations in our industrial structure, commerce could operate only with great difficulty, uncertainty and even controversy."

Currently there are well over 1,000 independent research, analytical and testing laboratories in this country, staffed with approximately 12,000 persons, Truesdail estimated.

WESTERN INDUSTRY/FEBRUARY 1961

. . . for more details, adv. opp. pg., circle No. 15 on Reader Service Postcard →



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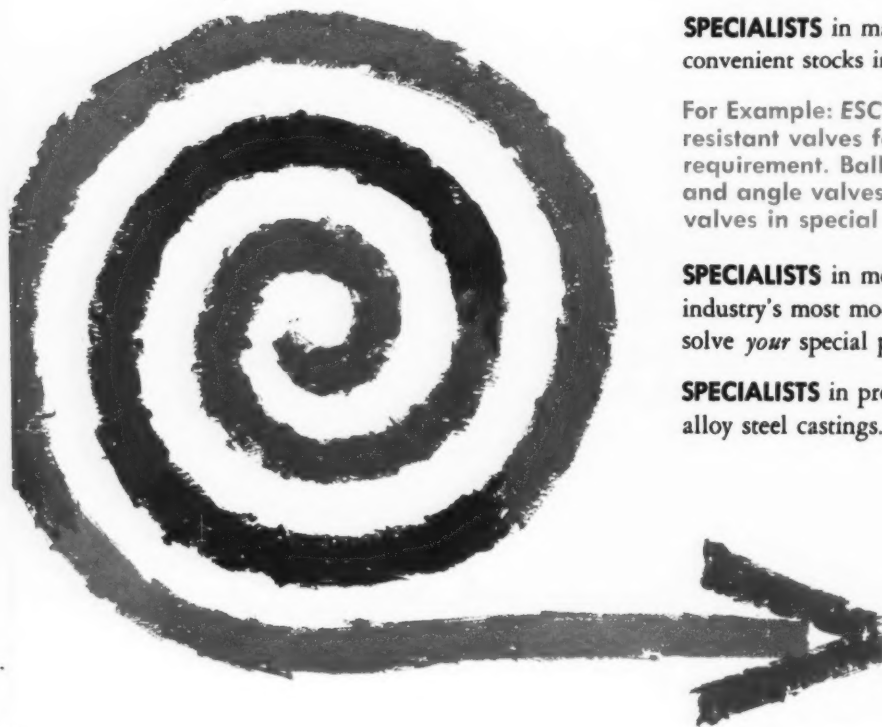
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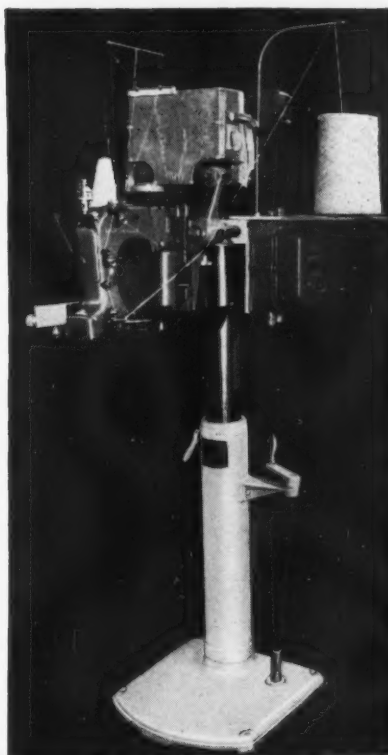
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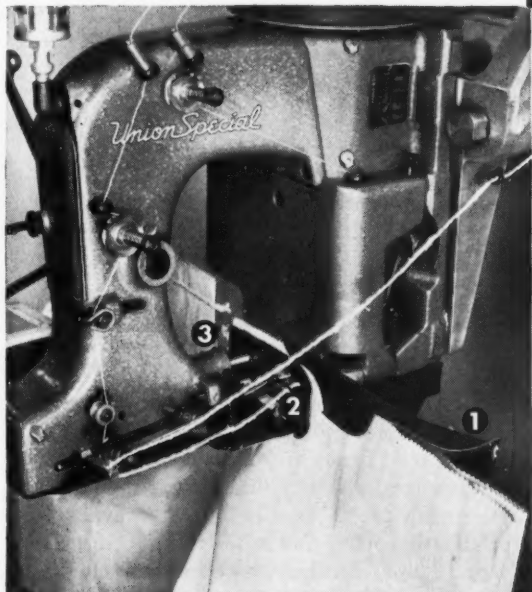
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Here's why...

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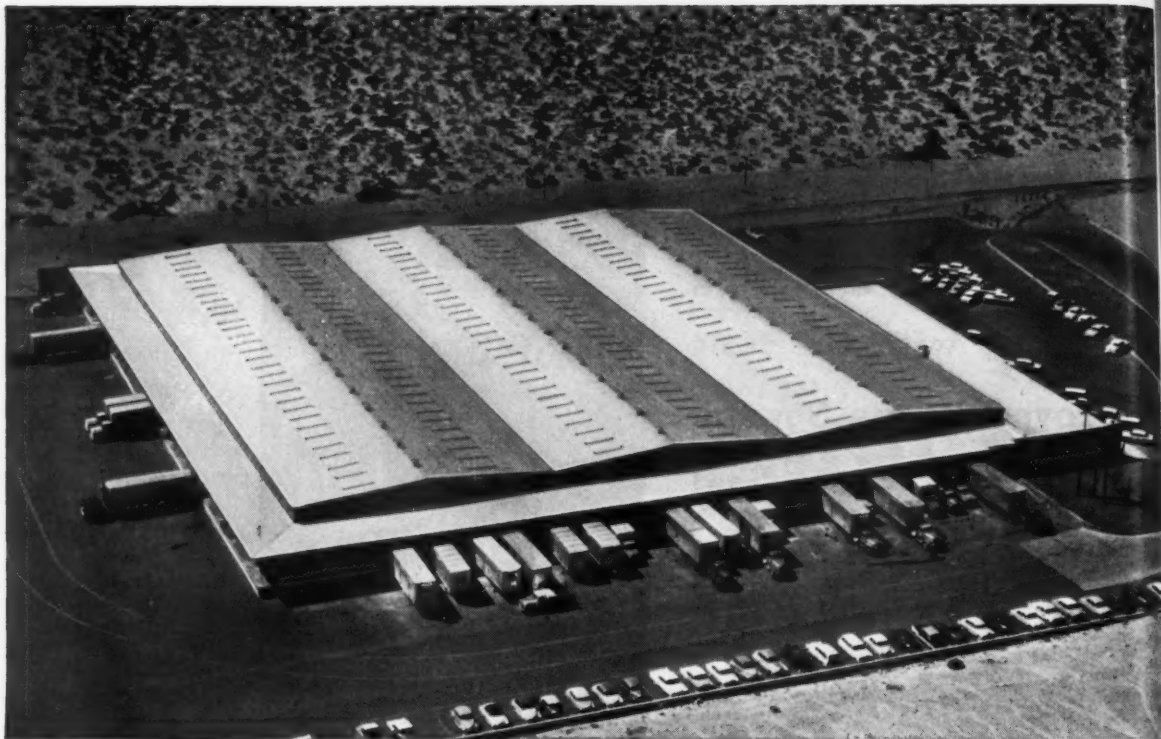
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the hardest-working warehouse you can buy...

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When you build a Butler warehouse, you get more than just a building . . . it's a completely flexible distribution center. For example, this handsome, substantial looking building recently completed in El Paso, Texas, for Tri-State Wholesale Associated Grocers, Inc., contains storage sections for many types of merchandise . . . frozen, refrigerated and non-refrigerated. Three open sides offer easy loading and unloading at virtually any point from trailers, trucks or trains.

The key to this distribution flexibility is Butler's rigid frame, clear-span construction. Post-free, truss-free bays up to 120 feet wide let you use every inch of floor space . . . provide unobstructed storage space up to the roof. Freedom to maneuver materials handling equipment simplifies movement of merchandise. Load-bearing rigid frames provide sides that are open, solid banks of overhead doors, or curtain walls in materials of your choice, including Butlerib and Monopanl . . . the two finest wall systems for pre-engineered buildings, available in durable, sparkling Butler-Tone colors. And now . . . only with Butler pre-engineered buildings . . . you can have a guaranteed aluminum roof over your head, so superior that a full 20-year roof guarantee is optional at nominal cost.

For full details on Butler warehouses — no matter how large or small — call your Butler Builder. Ask him about Butler financing, too. He's listed in the Yellow Pages under "Buildings" or "Steel Buildings" . . . or write direct.



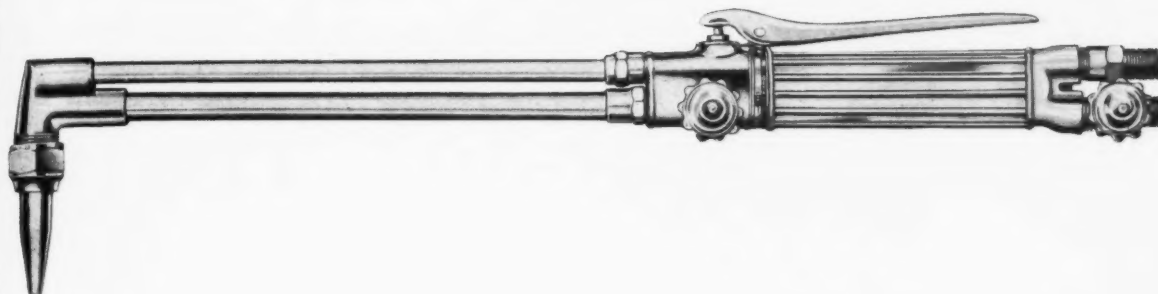
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WESTERN INDUSTRY/FEBRUARY 1961

WHAT FEATURES DO *you* NEED IN A CUTTING TORCH?



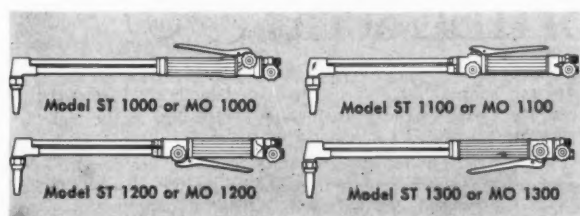
In the Victor line you'll find all the features you want! You have a choice of preheat gases, heads, lever positions, lengths, wide operating range.

FOR ACETYLENE: Model ST and MO series hand-cutting torches.

OTHER FUEL GASES: The new Model STN series hand-cutting torches with improved injector type gas mixers operate on either low (2-6 oz.) or medium pressure natural or propane type gases. This design has been thoroughly field tested and proven for maximum performance and efficiency.

HEADS: You can have either Everdur bronze (ST) or Monel (MO) head, angled at 90°, 75°, 180° . . . or 45° (ST models only).

OXYGEN LEVER POSITIONS: Four, as shown.



LENGTHS: 21", 27", 3' and 4'. (Special lengths on request).

OPERATING RANGES: Standard ST and MO models cut to approximately 8", using acetylene tips to size 5. Heavy duty (HD) models are available for work requiring tips above size 5, for gouging, scarfing, scrap cutting, etc. The new STN series use natural or propane type tips to size 8.

Remember, you can get Victor cutting attachments and machine cutting torches for use with acetylene—also for use with low or medium pressure natural or propane type gases. For the finest choice in cutting equipment, call on your Victor dealer now.

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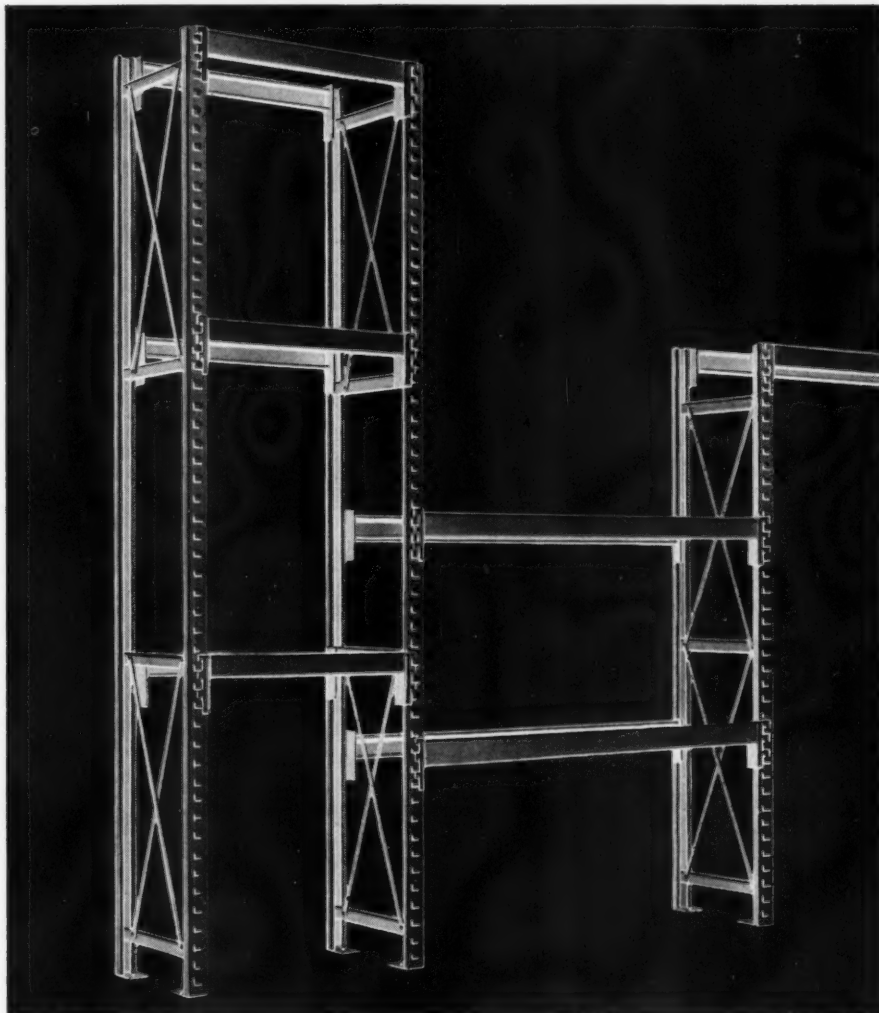
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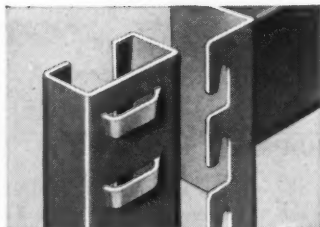


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Best buy in the industry - Meet the PALMER-SHILE series 75



... PLUS "SAFETY WHITE!" An innovation in the storage system industry is Palmer-Shile's Safety White! Exclusive with the "Series 75," Safety White rack finish gives you another big plus: total rack visibility even in dimly lit areas ... as well as a vastly improved appearance of your storage area.

The combination of strength, adaptability and cost that you'll find in the Palmer-Shile "Series 75" makes this new and highly versatile storage rack today's best buy in the materials handling industry. **CONSIDER STRENGTH:** There's no metal removal in the construction of uprights for "Series 75." Uprights are constructed as complete, integral units. And they are completely sway braced. The many shelf designs available assure optimum safe loading conditions. **CONSIDER ADJUSTABILITY:** "Series 75" adjusts on 3" centers from top to bottom without loss of adjustability at bracing points. What's more, erection is greatly reduced as there are no third-piece connectors. Cross members lock instantly and positively to the uprights in this two-piece system. **CONSIDER PRICE:** This custom rack system with its unique strength, its total adjustability—is priced competitively or under less perfect racks. Write today for the full story on "Series 75."

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Look for us at Booth #512, Materials Handling Exhibition, San Francisco, February 22-24.

... for more details, circle No. 19 on Reader Service Postcard
WESTERN INDUSTRY/FEBRUARY 1961

MATERIAL HANDLING SHOW PREVIEW

Here is your report on material handling in the West as well as complete information on the Material Handling Institute's Pacific Coast Show.

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Descriptions and Pictures of Many of Items of Equipment You Will See at the Show 31

INTRODUCTION

THE MANAGEMENT of Western plants, warehouses, piers, and terminals want and need practical guidance on the cost-cutting abilities of modern and efficient material handling products.

As president of our national trade association which has 90 member-companies scattered from coast-to-coast, I am delighted to accept the editor's invitation to comment on this important phase of industrial activity.

Our Institute brings its first trade show for the West Coast to San Francisco in February. This event, in the Cow Palace from February 22 through 24, is the third in the series of MHI regional trade shows. Like its predecessors in Boston and Louisville, the goal is to bring products to the market—rather than ask the market to take expensive and time-consuming trips

to see the products.

American manufacturers, both members and non-members of The Material Handling Institute, Inc., will display and demonstrate hundreds of models of new and improved material handling equipment. It is our belief that thousands of Western industry men will crowd into the Cow Palace to participate in this vital event that is geared specifically to serve industry in the Western States.

MHI member-companies are not only sold on the fact that all business is local; they are well aware that the West must deal with production and warehousing problems that are, in many instances, totally different from those facing Eastern manufacturers. In general, material and labor costs are higher in the West.

It is true that Western firms compete successfully

Mr. Moody, the author of this Introduction, writes with authority on this subject, for in addition to being President of The Material Handling Institute, he is also General Sales Manager of a prominent Western industry, Hyster Company, Portland, Oregon.



ROBERT F. MOODY

against most Eastern-made products because of the added cost of shipping from the East, but *only* when selling their products here in the West. The Western manufacturer who ships and sells to Eastern markets must take advantage of every possible cost-control factor in order to remain competitive.

That is where material handling equipment and techniques can be employed to great effect, because they are cost-cutting devices. We know that Western firms want and need more practical information about this important subject. What could be more practical than a material handling show designed expressly for the Western market?

By holding a regional show in the West, the Institute creates an opportunity for Western industrialists to see, first hand, what is new, improved, and currently available.

The MHI Pacific Coast Show provides the proper climate for these people to ask questions, compare features, learn about new products and, in general, become more aware of the material handling industry and its importance to them.

Establishment of the Institute's regional show program also allows manufacturers to exhibit equipment suited to the particular markets of the region—in this case the Western region. A national show requires a more general display of equipment, thus overlooking the specific needs of many regional markets.

The West is in another unique position. The tremendous industrial expansion now taking place in the Western portion of the United States has brought with it an unprecedented amount of new construction. New industrial firms are not restricted by the need to adapt material handling operations to conform with an existing structure, or existing plant equipment. By building from scratch, the plant or warehouse can be designed and laid out to take advantage of the most modern material handling techniques and equipment—if the responsible individuals know of these techniques and equipment, and take advantage of them.

Many Western industries are not really acquainted with the wealth of material handling equipment available to them—to help solve their problems. Most of Western plant management still do not realize the tremendous versatility of this equipment, and the wide variety of options and attachments that have been designed to meet special requirements.

I am one of those who believes that in our business press, and in our business conferences, there is far too

much discussion of broad general trends, and not enough serious thought about the real problems involved. Examples of this "blue sky" talk about the fantastic material handling marvels that lie ahead are:

1. *Cargo planes that will parachute huge containers to air freight docks without requiring the plane to land.*
2. *Suggestions to rip up railroad tracks to provide private roads for trucks, right into cities.*
3. *Driverless lift trucks.*

All these things may come about—someday. Meanwhile, plants, warehouses and shipping facilities are today being built in the West, at a stupendous rate. It is tragic that most of them will be constructed without proper consideration of material handling requirements!

There are significant general trends, of course. Containerization is certainly one of them. This subject has been covered extensively. Double-deck piggyback hauling of automobiles and other equipment by rail is also a growing trend. Rubberized "sausages" for all types of liquids can be towed behind barges or hauled on flatcars or highway trucks. Standardization of containers and pallet sizes is being increasingly promoted.

The rapid growth of Western industry offers a great challenge to the material handling manufacturer and marketer. This challenge can be met, with advantage to producer and recipient alike. Here are some keys to this success:

1. *The material handling industry must do a good educational job of showing Western manufacturers and wholesalers the equipment available, right now, that can bring about great savings in the handling of nearly all goods.*
2. *Material handling is built into every manufacturing and warehousing operation. It can make the difference between operating at a profit or at a loss, because at least 25 per cent of overall operating costs are incurred by the handling of materials. In some industries this percentage runs much higher.*
3. *The West, with its new plants, new products and new horizons, can learn a great deal from parent companies and older firms in the East about what will not work in the handling field. In considering capital equipment investment, this is equally as important as knowing what will work.*

So, instead of speculating on the possibility of lift trucks without drivers, operating in a plant that needs no human beings to make it function, let's get down to the basic truth about the material handling industry. It can already perform more "miracles" than it is called upon to demonstrate. It can already save manufacturers and shippers far more money than it is allowed to. It already has the skills, the know-how, the experience and the courage necessary to solve *any* material handling problem.

The MHI Pacific Coast Show will reveal to this Western regional audience the methods and the equipment available to attack these vital problems.

As president of The Material Handling Institute, Inc., I most cordially invite all readers of "Western Industry" to see new horizons in industrial material handling at the MHI Pacific Coast Show at the Cow Palace.



COW PALACE in San Francisco will be scene of the Material Handling Institute Pacific Coast Show on February 22 - 24. As seen in photo, ample parking facilities are available.

MHI PACIFIC COAST SHOW

February 22—24

THE MATERIAL HANDLING INSTITUTE'S Pacific Coast Show opens its doors Wednesday, February 22, at the Cow Palace, San Francisco. The date is easy to remember; it's Washington's Birthday. There is no charge to attend. Admission to the Show is free. For the first time in the West, industrial men will have a chance to see a show put on by an organization composed of the leading firms in the material handling industry. Some 100 manufacturers will exhibit over \$1,000,000 worth of material handling and packaging equipment designed to benefit all Western industries.

Theme of the show is "Products in Action." Nearly 300 of the products exhibited will perform actual handling operations. Visitors will be able to see fork trucks performing handling operations; complex conveyor systems moving materials from point to point at high speeds; and monorail systems working. These are only a few of the products that can be viewed in operation.

Many of the products shown will be new or shown for the first time in this area. Included are a wide

variety of industrial lift trucks, the newest in conveyor systems, complex monorail systems, hoists and controls, racks, pallets, all types of industrial containers, storage batteries and chargers, manual and powered strapping tools, strapping and other packaging materials, wheels, casters, and a wide variety of auxiliary equipment.

A feature of the Show will be the "Idea Center." This is a gallery of pictorial information on material handling equipment that has been specifically designed or modified to solve a particular industry's need. These specific application photos will be broken down and displayed under 15 basic industry categories.

At this 600-ft. long area some 2000 photographs will be displayed, and suggest to viewers possibilities of how their own material handling problems can be solved. Photographs will be keyed to the manufacturers' booth numbers for those interested in following up an application idea. In addition, information request cards will be available at the "Idea Center."

Plastic address plates, similar to charge account cards, will be given to all visitors at the Show. When visitors pick up a Show Badge, following registration at the Cow Place, they will also receive at no cost one of these address plates. Exhibitors will have imprinting machines in their booths and when a visitor wants special information or literature, all he has to do is hand the exhibitor his plate. In a second the exhibitor will have a clear accurate address.

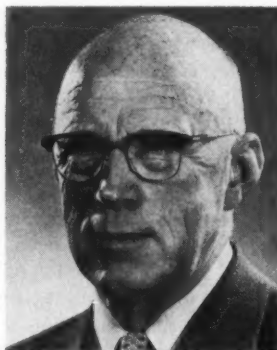
SHOW HOURS

Wednesday, Feb. 22	11:00 A.M.—6:00 P.M.
Thursday, Feb. 23	11:00 A.M.—9:00 P.M.
Friday, Feb. 24	11:00 A.M.—4:00 P.M.

6TH ANNUAL MATERIALS HANDLING and PACKAGING CONFERENCE

MEETING JOINTLY with the Show at the Cow Palace is the 6th Annual Materials Handling and Packaging Conference. The Conference is co-sponsored by the Northern California Chapter, American Material Handling Society, Inc.; Golden Gate Chapter, Society of Packaging and Handling Engineers; Central California Chapter, Society of Packaging and Handling Engineers. It is held in cooperation with the Industrial Engineering Departments of the University of California and Stanford University.

Conference General Chairman, is Ellis H. Woolley, employee development officer at Naval Supply Center, Oakland. Other members of the Steering Committee include: Hiram D. Smith, ass't general man-



ELLIS H. WOOLLEY
is Chairman of the
6th Annual Materials
Handling and Packag-
ing Conference.

ager, Matson Terminals, Inc., who serves as secretary; program chairman Robert A. Sherry, Martin Bros. Container & Timber Products Corp.; John R. Cunningham, manager Industrial Tape Pacific Division, Behr Manning Co., conference publicity chairman; William Dalton, conference treasurer, manager of San Francisco Division, Container Laboratories, Inc.; Lee Clearwater, Firemen's Fund Group, the chairman of arrangements; and Leo F. Delventhal, senior transportation engineer, Market Research, Western Pacific Railroad Co.

Registration for the Conference is \$15.00 for full two day conference participation and \$10.00 for participation in one session only.

THURSDAY, FEBRUARY 23

- 8:30 A.M.-9:00 A.M.—Registration
- 9:00 A.M.-10:15 A.M.—Joint Session. Session Coordinator, Leo F. Delventhal, Western Pacific Railroad
- 9:00-9:15 A.M.—Opening Remarks. Ellis H. Woolley, General Conference Chairman
- 9:15-9:30 A.M.—Conference "Kick-Off." Raymond C. Grassi, Professor of Engineering, University of California

- 9:30-10:15 A.M.—Keynote Address. *The Improving Opportunities for Integration of Transportation; Materials Handling and Packaging*; L. L. Adams, Assistant to Vice-President of Traffic, U. S. Steel Corp.

10:30-12:00 Noon—Split Sessions

ROOM A—PACKAGING

Session Coordinator, Fred Hannum,
Zellerbach Paper Corp.

- 10:30-11:15 A.M.—*Coordinated Packaging*, Alan Grayson Lynn, Eitel McCullough, Inc.

- 11:15-12:00 Noon—*Standardize and Save With Strapping*, Arnold R. Johnson, U. S. Steel Supply Division, U. S. Steel Corp.

ROOM B—MATERIAL HANDLING

Session Coordinator, J. E. Sullivan,
Columbia-Geneva Division, U. S. Steel Corp.

- 10:30-11:15 A.M.—*How To Break Bottlenecks in Material Handling*, Richard L. Speaker, Speaker Sortation Systems, Inc.

- 11:15-12:00 Noon—*Warehouse Material Handling Problems and Solutions*, Dwight C. Brown, Material Handling Branch, General Services Administration

FRIDAY, FEBRUARY 24

- 8:30 A.M.-9:00 A.M.—Registration
- 9:00 A.M.-10:15 A.M.—Joint Session. Session Coordinator, G. Paul Heppes, Portco Corporation
- 9:00-9:05 A.M.—Welcome Address. Ellis H. Woolley, General Conference Chairman
- 9:05-9:20 A.M.—Conference Kickoff. James M. Moore, Professor of Engineering, Stanford University

- 9:20-10:15 A.M.—Keynote Address. *Why Integration of Handling and Packaging*, Charles J. Zusi, Packaging Consultant

10:30-12:00 Noon—Split Sessions

ROOM A—PACKAGING

Session Coordinator, Arthur Erickson,
Erickson Wood Products

- 10:30-11:15 A.M.—*Packaging As A Quality Control Function*, Alvan Hansel, Hunt Foods & Industries

ROOM B—MATERIAL HANDLING

Session Coordinator, J. R. Merry,
General Services Administrator

- 10:30-11:15 A.M.—*Cushioning Requirements For Adequate Lading Protection*, W. H. Peterson, Pullman Standard Company

JOINT SESSION

- Session Coordinator, Robert A. Sherry, General Conference Program Chairman
- 11:15-12:00 Noon—*Integration of Handling and Packaging For The Space Age*, Kenneth Brown, Industrial Editor, John Wiley & Sons, Inc.

NEW TRENDS IN EQUIPMENT

THINGS ARE HAPPENING in material handling. Nowhere are they happening faster than in the West. Generally speaking material handling equipment is improving more rapidly than most realize. In fork lift trucks improvements in lift speed, ease of handling and maneuverability have created a product that can decisively out-perform trucks of four or five years ago. Take the case of one Western plant where a fork lift fleet was recently replaced. The plant manager reports that the new trucks are doing one-third more work than an identical number of the same trucks three to seven years old.

Not only is equipment being improved, but equally important we are learning how to do more with the equipment we have. A conveyor manufacturer reports that installations of conveyor equipment should be reviewed at least every year because of obsolescence. The obsolescence here is not caused so much by product improvement as by increased knowledge of application and use of the different components that make up a complete conveyor system. According to him application techniques are improving so rapidly that handling savings will often justify a new installation long before the old one is worn out or has been fully depreciated.

There are a number of trends in use of fork lift trucks. They all point to more work in a shorter period of time and better utilization of storage space by users. There is a definite trend to higher stacking which gives increased utilization of present storage space. Mast heights on lift trucks have steadily climbed. Some 10% of masts on trucks sold in West by one prominent manufacturer range from 168-in. to 257-in. Over half of this number are over 216-in. When purchasing lift trucks, the slight difference in cost of higher masts makes it a sound policy to anticipate future higher stacking for many firms not doing so now. The trend to narrow aisles must be considered in light of two other factors. Aisle traffic can cause congestion that slows handling. Narrow aisles are possible only if load sizes which determine storage widths and aisle sizes conform to building dimensions.

One trend is to large unit loads and therefore larger equipment. Now being seen is the lifting of multiple unit loads. Trucks are available that have multiple sets of forks, and some with two rows of forks are designed to handle four loads at a time. Money saved here is not on cost of trucks replaced, but on elimination of extra upkeep, drivers and maintenance on the several trucks that one replaces.

Manufacturers also report a trend towards compactness in equipment. With compact equipment comes easier handling and more maneuverability in tight spots. While compactness increases amount of work a truck can perform, it creates a problem for maintenance personnel, who find compact designs limit accessibility.

In overhead handling equipment such as cranes and

hoists there is a trend to wider crane spans. New Western plants, preplanned construction and stronger construction materials are making this practical. A wider crane span means more available handling area for the money spent. Where formerly an interlock was used firms are now using only one span.

Gantry cranes are being used more than formerly. This is a trend that started in the West and has moved back East. Advantage of this type of crane is that no building is required to support it. Typical example of the use of gantry cranes is in the new Matson unit load system where trucks driven under crane have large unit container lifted from truck and stowed in hole of ship. These cranes are seeing extensive use by power companies and trend is to larger units.

Small hoists are more and more electrified as against hand operated type. Push button controls are popular with these hoists. An interesting Western trend is that more and more new Western plants are incorporating hoists in their initial plans and specifications. Material handling specialists are becoming increasingly important in this field.

Small hoists are being downgraded and are doing more individual jobs. As a result the demand is for small hoists of smaller capacities with a light weight portability. There is an increased trend for special hoists to meet special needs such as low headroom, remote controls, weather or acid conditions or fool-proof automatic limit switches for handling of planned production.

Larger hoists show a trend to larger capacities. Loads are generally increasing. Firms looking to the future see this as a broad trend and many are anticipating this trend. Many plants that formerly considered hoists in the 1½-2.5 ton class are now interested in hoists in the 5-7½-10 ton class for the same general use. Another trend is in motor driven trolleys. An increasing number of motor-driven trolleys are being used over manual and they are being used more on the smaller size units.

Radio communication is showing up as an increasing trend in material handling. Since material handling equipment is designed basically to cut costs, it follows that costs can be reduced still more if the equipment is used more efficiently. Radio equipment is found in many types of handling equipment including cranes, trucks, and fork lifts.

There is increased Western activity in the conveyor field. Much of this is centered around new developments in application and use of components. An area which in the past has been largely manual, order picking, is being made mechanical, and conveyors are playing a major role. Typical application of this will tie in the live storage principle using gravity fed roller conveyor storage racks that are designed to feed into a power conveyor.

Selection of products from racks onto conveyor is made either manually, or by means of manually oper-

ated automatic controls, or automatically by means of punched card. How automatic the method is must be determined by individual application. The trend however is towards automaticity. This has been aided by improved electronic control systems. Indicative of trend are other control methods that automatically route packages on conveyors or trucks running on endless chain.

Larger more automatic installations are appearing with increasing frequency in West as firms become larger. Warehousing is a recently tapped field for this type of installation. Food industry is another area where conveyors are being used extensively.

Another interesting trend appearing in West is use of overhead trolley conveyor systems for storage. While expensive as storage, it utilizes unused space close to roof and is especially good for bulky items.

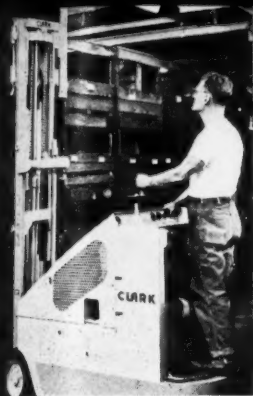
Since system allows fast selection close to point of use it can be used to advantage when storing press dies or molds in production plants.

Storage methods are receiving a lot of attention in Western installations. With rapid Western plant expansions and new products, permanent rack installations are at a disadvantage. Flexibility coupled with durability is the trend in racks. Many different designs of racks are available. Most stress rapid installation with few tools, standardized parts to enable reuse in a different installation, strength to absorb punishment, and flexibility in construction of almost any type of arrangement.

To carry the idea of flexibility still further production tote boxes have appeared on the market. These boxes can be stacked and become bins. Important feature is elimination of stock handling when binning.

LIST OF EXHIBITORS

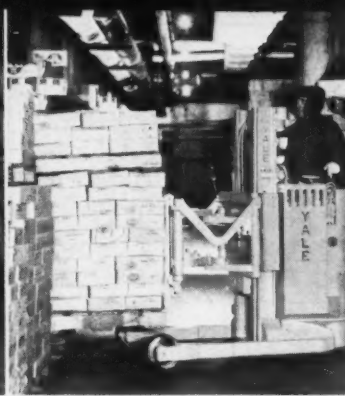
EXHIBITOR	BOOTH NO.	EXHIBITOR	BOOTH NO.
Acme Steel Company	1217, 1223, 1316, 1322	The Joyce-Cridland Company	1208
Aerol Company, Inc.	409, 411, 413, 415	Kelley Company, Inc.	409, 411, 413, 415
All American Steel Products	1408	King Publications,	
American Chain & Cable Company, Inc.	604, 605	Western Industry Magazine	715
American Material Handling Society, Inc.	205, 304	La Marche Mfg. Co.	1609
American Metal Products Co.	409, 411, 413, 415	Lamson Corporation	705
The American Monorail Company	417	G. B. Lewis Company	506
Conveyor Div.	202	Lewis-Shepard Products, Inc.	409, 411, 413, 415
The American Pulley Company	716, 717	Marsh Stencil Machine Co.	422
American Viscose Corporation	419	Martin-Decker Corporation	720
Austin-Western Works, Construction Equipment Div.,		Material Handling Engineering	401
Baldwin-Lima-Hamilton Corp.	418	Material Handling Equipment Distributors Association	305, 404
Banner Metals, Inc.	1023	Minneapolis-Moline Company	905, 913
The Bascick Company	514	Modern Materials Handling	505
Better Packages, Inc.	718	Motor Generator Corporation	414
R. M. Bracamonte & Co.	1405	Motorola Communications & Electronics, Inc.	204
Business and Defense Services Administration,		National Malleable and Steel Castings Co.	1113
U. S. Department of Commerce	706, 707	National Wooden Pallet Manufacturers Association	721, 722
C & D Batteries, Div. The Electric Autolite Co.	412	Pacific Factory	515
California Conveyor Company	416	Palmer-Shile Company	512
Cargotainer Division, Tri-State Engineering Company	405	The Paltier Corporation	313
Chainveyor Corporation	322	Pullman-Standard Div., Pullman, Inc.	719
Champ Sales Corporation	1404	The Rapids-Standard Company	225, 324
Chisholm-Moore Hoist Division,		Ralphs-Pugh Company, Inc.	503
Columbus McKinnon Corporation	1504	The Raymond Corporation	213, 215
J. D. Christian Engineers	222	Republic Electric & Development Co.	504
Clark Equipment Company,		Richards-Wilcox Manufacturing Company	319
Industrial Truck Division	208, 210, 212, 214, 216, 218, 220	Signode Steel Strapping Company	1116, 1122
Clarke Floor Machine Company	1007, 1009, 1011	Silent Hoist & Crane Co.	1412
The Colson Corporation	311	Skarnes Engineering & Supply, Inc.	906
Continental Motors Corporation	200	Society of Packaging & Handling Engineers	304
Crown Controls Company, Inc.	1209	Spaulding Fibre Company, Inc.	904
Cushman Motor Works, Inc.	507, 508	Standard Conveyor Company	1117
Darnell Corporation, Ltd.	223	Stanley Steel Strapping, Div. of The Stanley Works	1409, 1411
Diagraph-Bradley Industries, Inc.	510, 511	Stevens Appliance Truck Co.	325
Drott Manufacturing Corp.	1108, 1112	Storage Products Corporation	405
Duff-Norton Company	315, 317	T & S Equipment Company	1416
Econo Manufacturing Co.	723	Tennessee Wheel & Rubber Company	714
Economy Engineering Company	403	Towmotor Corporation	209, 308, 309, 408
Engineers Associated, Inc.	606	Union Steel Products Company	1023
Evans Products Company	509	Unit Load Car Corporation	1516
Faultless Caster Corporation	708	United States Air Force Packaging & Materials Div.,	
General Electric Company	516	Directorate of Transportation	1013, 1015, 1017
Globe Pacific Hoist Co., Industrial Division	711	United States Steel Supply Division,	
Gould-National Batteries, Inc.	211	United States Steel Corporation	312, 314
Granu-Flow Equipment, Ltd.	709	Universal Hoist Company	713
Grove Manufacturing Co.	1508	Wayne Manufacturing Company	423
Harlo Products Corporation	1512	Jervis B. Webb Company	1323
Hollywood Plastics, Inc.	410	Weber Marking Systems, Inc.	224
Hyster Company	217, 219, 316, 318	Western Material Handling Magazine	323
Industrial News, Trade Publishers, Inc.	323	Whiteman Manufacturing Company	1309
Insul-B-Corp.	513	Yale & Towne Manufacturing Company	
Ironrite, Inc.	310		1005, 1104, 1105, 1204, 1205, 1304, 1305



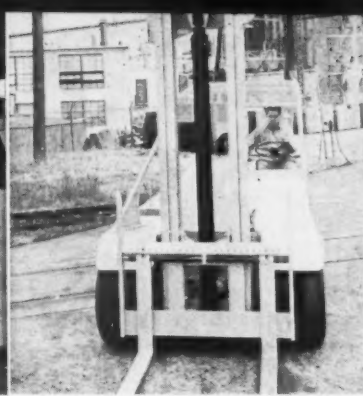
CLARK gas powered stand-up lift truck designed for compactness and ease of operation.



HYSTER Challenger 20-25 series lift truck will be displayed for the first time at the MHI Show.



YALE Warehouser Extend-A Load fork lift truck is equipped with a 24 volt power system.



TOWMOTOR's new Monarch series of heavy duty lift trucks. Note off-center seating, single chain lift.

EQUIPMENT AT THE SHOW

Here are some of the highlights on the many different products you will see at the Show. For your convenience, the booths where these equipment lines are shown have been noted.

TRUCKS & MOBILE EQUIPMENT

American Pulley will exhibit a full line of hand trucks, hand lift trucks, and portable elevating trucks. Of interest is the new Kase-King line of light weight tubular hand trucks, and the Drum King Truck with a new hook allowing handling of fiber drums as well as steel drums. Booths 716-17.

Clark Equipment Co. is showing seven lift trucks with capacities from 2,000 to 15,000 lbs. Both gas and electric powered units will be demonstrated in booth 208. During demonstrations a closed circuit telephone network will carry a running commentary. Booths 208, 210, 212, 214, 216, 218 and 220.

The Clarke Floor Machinery Co. will show power sweepers and combination floor Scrubber-Vacs. On display for the first time on the West Coast will be the new model CHD-36 Heavy Duty Sweeper, which is built for around-the-clock use. Booths 1007, 1009, 1111.

Economy Engineering Co. is featuring two items, a platform telescoper that will clear a seven foot doorway, yet rides up as high as 35 feet, and the new Walkie-Worklifter die handler. Booth 403.

Hyster Co. will show for the first time two new

series of compact lift trucks in the 2,000 lb. capacity class. The SpaceSaver 20-25 cushion tire series and Challenger 20-25 pneumatic tire series. Two other units are featured also, a 5,000 lb. capacity lift truck with a Cart-N-Grab clamp attachment for palletless handling, and a 7,000 lb. capacity truck with special attachment for volume handling in close quarters. Booths 217, 219, 316 and 318.

Lewis-Shepard is displaying a broad range of electric powered and hand operated trucks. All will be fully operative for demonstration. Of particular interest is the newly developed rider-type high stacking-remote controlled JackStackers for Stock pickers. Booths 409, 411, 413, and 415.

Silent Hoist & Crane Co. will unveil a new 1961 model lift truck at the Show. Unit shown is model FK3 of 6,000 lb. capacity. Other sizes are available up to 70,000 lbs. Booth 1412.

Towmotor Corporation will display a number of new developments in fork lift truck design. Included are new Monarch series of heavy duty fork lift trucks with capacities from 10,000 to 24,000 lbs, Van-Stack series fork lift trucks, that are only three feet wide and 71½ inches high to top of mast, plus several new accessories. Booths 209, 308, 309 and 408.

Wayne Manufacturing Co. is featuring two power sweepers, models 703 and 706. Six new improvements have been made on these units including a "floating" side broom, positive control of belt tension and broom angle, and new muffler for quieter operation. Booth 423.

Yale & Towne Manufacturing Co. plans to feature three lift trucks, the K58 electric truck with short low

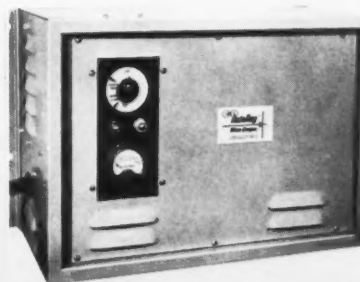
CLARKE FLOOR MACHINE new Model CHD-26 heavy duty sweeper will sweep up to a 58-in. swath.



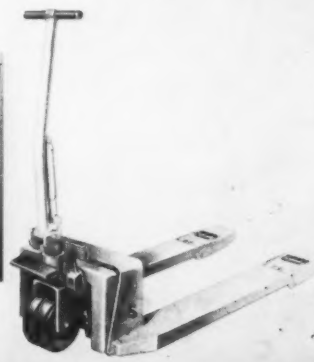
AMERICAN PULLEY "Drum King" is one of two new items shown. Note hook for handling of fiber drums.

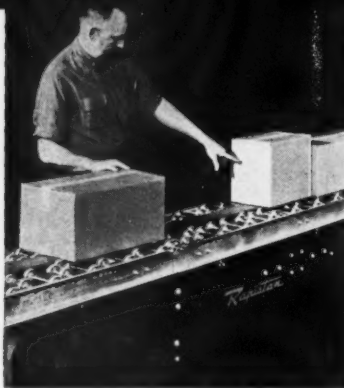


C & D BATTERIES' Auto Reg Silicon Charger for 6 cell batteries gives charging in a single shift.



LEWIS-SHEPARD truck, one of full line of hand and electric-powered trucks that will be seen at Show.

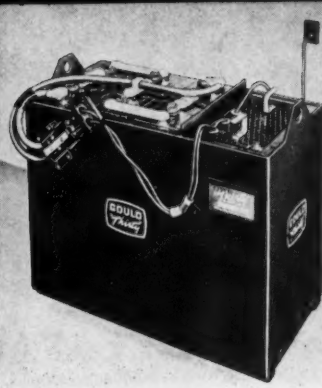




RAPISTAN's new adjustable pressure conveyor will accumulate cartons without building up pressure.



REPUBLIC ELECTRIC & DEVELOPMENT control board of memory sorting system for conveyors.



GOULD Fulpowr unit has charger mounted internally in battery, can be plugged in at convenient outlet.



MOTOROLA Dispatcher Radiophone is available in two designs, as shown, and easy to install.

silhouette and infinite speed range, the G54 gas truck with short over-all length and low operator seats, and the Yale Warehouser Extend-A-Load with 24 volt power system and an extending device operating on this power system. Booths 1005, 1104, 1105, 1204, 1205, 1304 and 1305.

ACCESSORIES

Aerol Company, Inc. will have on display specially engineered aluminum casters of a precision nature, Booths 409, 411, 413, 415.

Bassick Co. is displaying a wide line of wheels and casters. Visitors will be able to see a display board at the booth showing the different items available. Booth 514.

C. & D. Batteries are showing industrial truck batteries and Silicon Chargers including the full automatic regulating types for industrial truck batteries. Booth 412.

Colson Equip. & Supply Company's line features casters, wheels, hand trucks and platform trucks, for industrial use. Booth 311.

Darnell Corp., Ltd. is displaying a large variety of wheels and casters designed for the user. Booth 223.

Gould-National Batteries is showing three types of batteries for rider-type and electric floor trucks, rectifier and motor-generator chargers, and the Fulpowr power package for electric floor trucks. The latter is a battery and Silicon Charger that permits charging from electrical outlets without removing the battery from the truck. Booth 211.

Martin Decker is showing its line of scales that can

be used with cranes and hoists to weigh loads. Booth 720.

Faultless Caster Corp. will display a line of industrial casters that range from light duty through extra heavy duty for trucks and other units. Booth 708.

Motor Generator Corp. will have at the show a complete line of motor-generator battery chargers, both low and high speed. Of interest is new Hobart recycling control for fully automatic sequence charging of two batteries of comparable capacity. Booth 414.

Motorola will show its industrial Dispatcher radios, the first two-way radio equipment specifically designed for materials handling equipment. In addition, visitors can see the new Handie-Talkie pocket transmitter, the first fully transistorized FM radio transmitter to operate on standard VHF two-way mobile communications frequencies. Unit weighs only 14½ ozs. Booth 204.

CONVEYORS

J. D. Christian-Engineers will show examples of various belt and screw conveyors for bulk handling. Also on display is their packaged power terminal, a complete motorized pulley. Booth 222.

Chainveyor Corp. is showing a full sized conveyor in operation, that features extreme versatility through a wide range of horizontal and vertical curve sections. Sections range from 6 inch to 36 inch radii. Booth 322.

California Conveyor Corp. plans to show their new Power-Flex, a portable conveyor so flexible that S curves can be made. Booth 416.

Lamson Corp.'s exhibit will feature several types

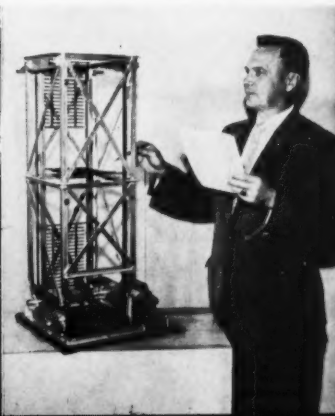
CHAINVEYOR is showing this full size conveyor in operation to show equipment's versatile character.



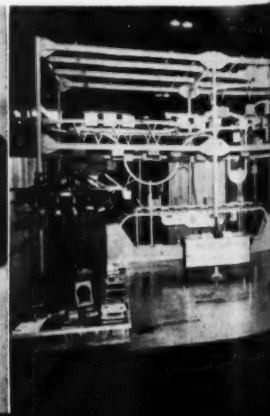
JERVIS B. WEBB Towveyor in action. Model of unit will be on display at booth in Show.



STANDARD CONVEYOR's new Escavveyor is solution to fast vertical handling where space is limited.



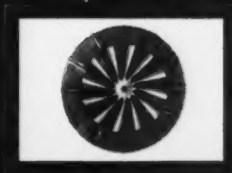
RICHARDS-WILCOX's Zig-Zag overhead conveyor will be on display to show equipment versatility.



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INSUL-8's display at Show will illustrate their safety electrical system for cranes and conveyors.



GLOBE HOIST used to unload a truck. After use unit retracts, becoming part of floor.



CHISHOLM-MOORE 2 ton Meteor heavy duty electric hoist is one of complete line visitors will see.



LAMSON completely automatic let loader is made so when pallet emerges another is in.

of conveyor sections, including roller-gravity belt-driven and ball-transfer units. Also shown through murals is an automatic pallet loader and an air-tube communication system. Booth 705.

Ralphs-Pugh Co. will exhibit various types of belting and cleats, etc., used in their conveyor systems, including trough belting, cleated belting, flange belting and hinged-wall belting. Booth 503.

Rapids-Standard Co., Inc. will feature a new pressure-sensing conveyor that eliminates pressure buildup and is adjustable. Also shown will be a number of overhead trolley conveyor systems and a live storage, quick-picking, Flow Rack. Booths 225, 324.

The Republic Electric & Development Company is displaying its new magnetic memory system to give automated control of grading, sorting, filling, marking, wrapping and stamping of conveyed products. Booth 504.

Standard Conveyor Company will show a live-scale model of a new machine called Escaveyor, designed for speedy solution to vertical handling problems. Booth 1117.

Richards Wilcox is erecting a Zig-Zag overhead conveyor in its booth. Unit will feature 180° twisted truck sections, vertical rises, spiral loops, etc. Display will load, carry and unload boxes. Booth 319.

Jervis B. Webb Co. will have on display a modeled Towveyor and show films of applications of different types of conveyors in various industries. Booth 1323.

HOISTS, CRANES & LIFTS

Austin-Western is showing a number of cranes in-

cluding its new self-propelled 3-wheel type hydraulic crane, model 110. Booth 418.

American Monorail Co. will feature of a number of different varieties of overhead handling equipment at its show booths. Booths 417, 202.

Chisholm-Moore Hoist Division, Columbus McKinnon Corp. is showing an extensive line of electric and hand operated hoists, ratchet-lever type hoists and I beam monorail trolleys. Booth 1504.

Globe Hoist Co. will show a number of hydraulic lifting devices for material handling use. Booth 711.

Kelly Co. will have on display a dock board that automatically adjusts to loading height and returns to original position when truck leaves. Booths 409, 411, 413, 415.

Joyce-Cridland Co. is exhibiting a selection of hydraulic and mechanical lifting devices that can be adapted to all types of installations. Booth 1208.

T & S Equipment Co. will feature a line of loading ramps that are self-adjusting and retractable. Also included is dock bumper. Booth 1416.

Wright Hoist Division, American Chain & Cable will display hoists, sling chains, and wire rope slings. Hoist line features include overload cut-off and both aluminum and steel manually operated units. Booth 604, 605.

Insul-8-Corp. is displaying a safety electrification system for use in cranes, monorails, conveyors and other mobile machinery applications. Booth 513.

RACKS, PANS & PALLETS

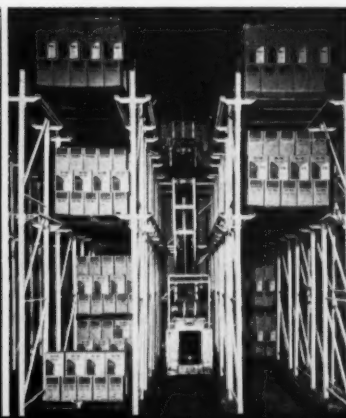
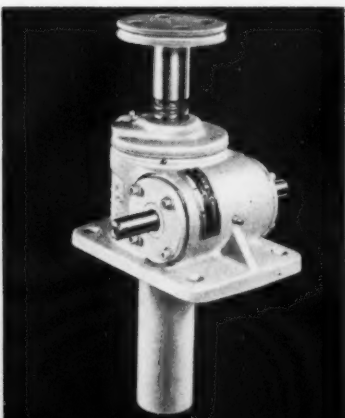
Acme Steel Co. will show AIM Brand Slotted Angle

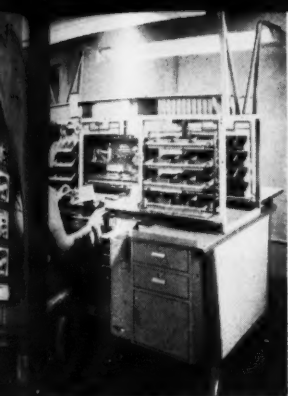
PALTIER rack installation is shown using a stacker crane to load and unload in confined area.

JOYCE-CRIDLAND worm gear jack screw, a device recently incorporated in their mechanical lifting line.

STORAGE PRODUCTS CORP. drive-in rack permits high density storage in areas.

TRI-STATE ENGINEERING's Clearview Cargotainer is used box, rack and shipper.





BANNER METALS new Erecto-sembly production station cuts handling electronic assembly of units.

G. B. LEWIS new plastic assembly containers have many production and storage uses.

HOLLYWOOD PLASTICS shows new special instrument cases such as one above.

ACME STEEL AIM Brand Slotted Angle makes a sturdy rack at Tay-Holbrook, Inc., San Leandro, Calif.

used for erection of low cost sturdy storage racks. Booths 1217, 1223, 1316, 1322.

Banner Metals is displaying models of Palletainers that can be used for handling, storage and transportation of materials. Also shown is an interesting production station for assembly of intricate parts. Booth 1023.

Hollywood Plastics is displaying their entire line of material handling tote boxes, instrument cases and accessories. Shown for the first time are new specialized instrument cases plus Stack-N-Nest tote boxes for the food industry. Booth 410.

G. B. Lewis Co. will feature a new line of plastic unitized assembly containers and accessories designed for production, assembly, line feed, and small parts storage. Booth 506.

Palmer-Shile Co. will display its new series 75 storage rack that is designed for added strength with no metal removal in construction of its uprights. Also new is Safety White Finish. Booth 512.

Paltier Corp. will display for the first time a complete line of storage equipment including portable racks, adjustable pallet racks, drive-in racks, stacking frames for standard pallets, and a new Live Rack. Booth 313.

Storage Products Corp. is exhibiting two types of free standing racks, a new drive-in rack and a standard pallet rack. Booth 405.

Cargotainer Division, Tri-State Engineering is showing its Clearview Cargotainer, that serves as a box for production, a rack and a shipping container that can be fully collapsed and returned. Booth 405.

PACKAGING & SHIPPING

American Viscose Corp. will exhibit Avistrap cord strapping, manufactured from rayon cord. Shown for the first time is a mechanized pneumatic tensioner to eliminate guesswork tension on packages, complete line of hand strapping tools, two new types of rayon strapping for heavy duty use. Booth 419.

Better Packages Inc. is showing for the first time on the West Coast two new units. The Robot Electric is designed to automatically provide tape for fast package sealing. The Electric Codetaper is a new machine for code printing tape. Booth 718.

Diagraph-Bradley Industries will display a full line of shipping supplies, with special demonstrations of the Rol-Flo roller stencil process, and new electronic gum tape dispenser. Booths 510, 511.

Evans Products Co. will illustrate its DFB bulkhead car at the Show. A scale model of the DF loader will be on display. Booth 509.

Signode Steel Strapping Co. is exhibiting a line of strapping materials including the Microgrip Seal, a new development that provides greater joint strength. Booths 1116, 1122.

Stanley Steel Strapping is showing its line of strapping materials and equipment, including strapping tools and machines. Booths 1409, 1411.

United States Steel Supply will exhibit a new automatic round steel strapping line, which can take cartons of different sizes and automatically adjust to make one, two or three ties on cartons, depending on size and shape. Booths 312, 314.

AMERICAN VISCOSE Avistrap cord strapping made of rayon is used to palletize an industrial package.

SIGNODE's new Microgrip seal was tested for over two years before the development was placed on market.

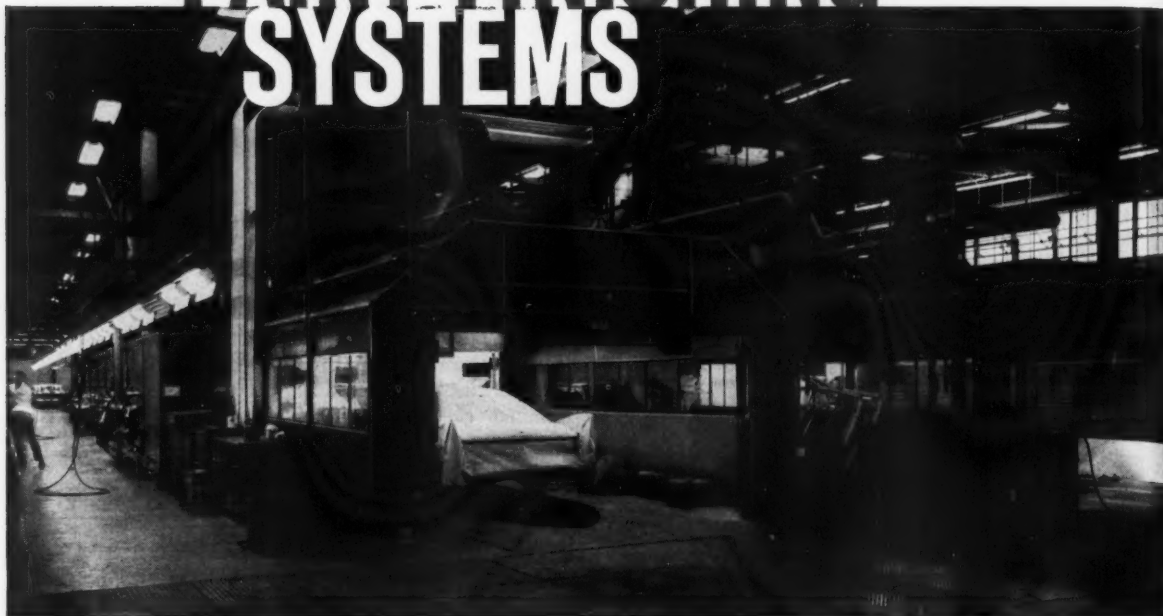
DIAGRAPH-BRADLEY is displaying this new Electronic gummed tape dispenser for shipping room use.











EVANS PRODUCTS CO. DFB bulkhead car and DF loader can be seen at Show. Photo above is of loader.





COMPLETE PAINT FINISHING SYSTEMS



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SOLVENT VAPOR ENCLOSURE  to FLASH OFF 
into PRIME COAT BAKE OVEN  on to FINISH
COAT  then to FINISH COAT BAKE OVEN 
into COOL  on to INSPECTION 

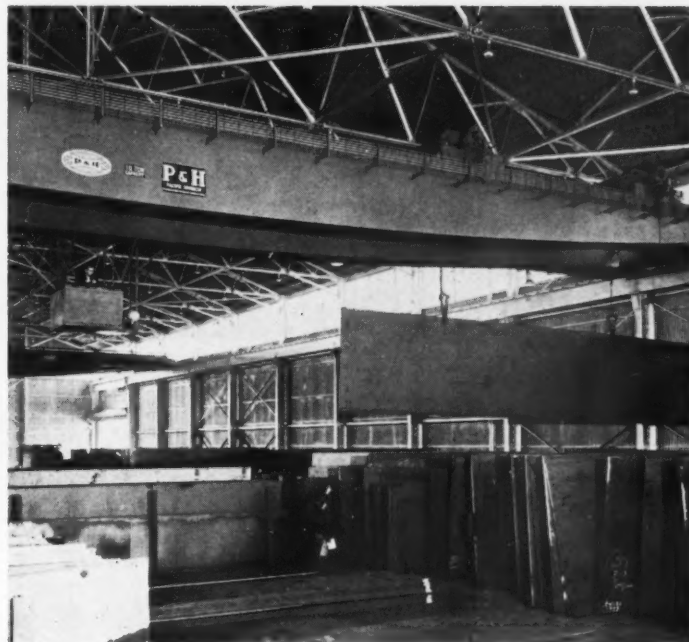
The whole system is an engineered combination of the most modern ROSS components including metal preparation units, spray booths, flow coat units, dry-off ovens, air make-up units, air heaters, conveyors and air conditioning units. Now, a single responsibility for the entire system—engineered, designed, constructed and erected by J. O. Ross Engineering. For more information send for Paint Finishing Bulletin No. PF 401.



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WESTERN INDUSTRY/FEBRUARY 1961



→ Huge P&H crane lifts 8x40 foot piece of A7 plate, 1/2-in. thick from plate storage area at Earle M. Jorgensen Co. Crane will haul plate to shear line for cutting.

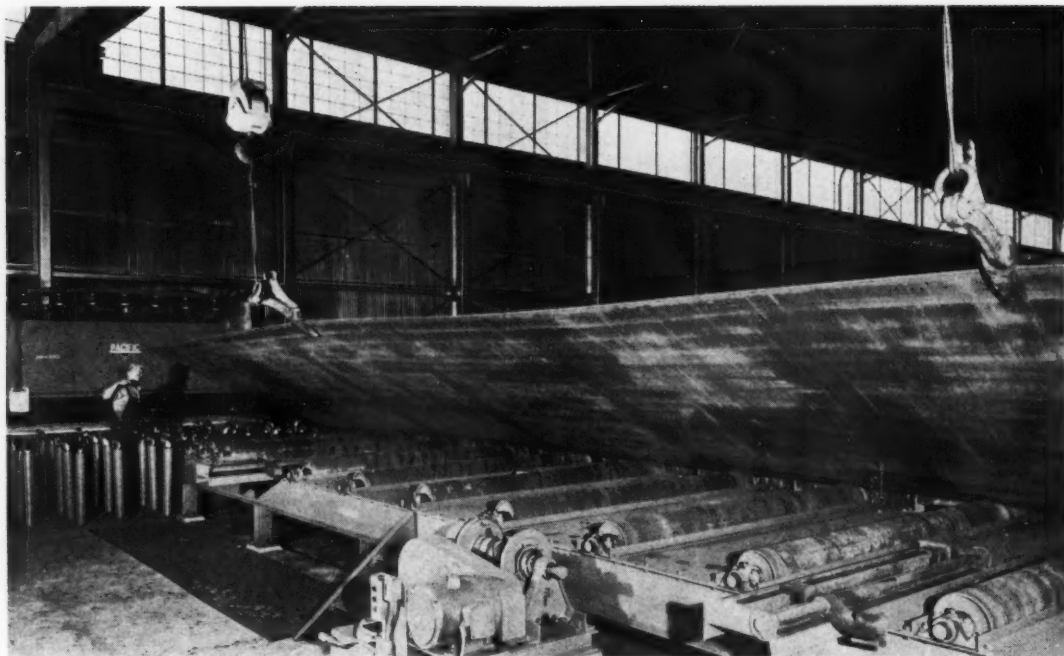
CRANE HANDLING of heavy steel plate

For some applications there is nothing like a crane. This Western firm finds the method perfect for feeding a shearing line with large bulky steel plate.

BELIEVED TO BE the only facility in the greater Los Angeles area devoted entirely to handling, processing and delivery of plate is a recently opened bay at Earle M. Jorgensen Co. that is equipped with cranes capable of moving 40,000 pounds of metal at one time to shearing, cutting and heat treating stations.

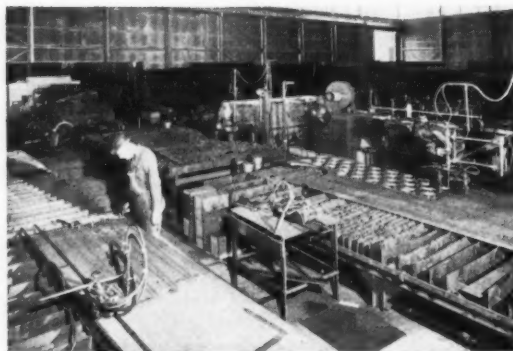
Totaling 236,870 sq. ft. the new service center has based its material handling operations on two P&H Harnischfeger overhead cranes spanning 116-ft. of the 120-ft.-wide bay. Each crane has an operator situated in an underslung cab that offers high visibility of all work areas.

To facilitate rapid crane loading, plate is stored on



***SHEAR OPERATOR SIGNALS** to crane operator lowering 40-ft. length of plate onto power conveyor. Conveyor and shear controls are on a single console and permit unaided operator to feed largest sections of plate into the 1-in. capacity Pacific shear. Truck driveway is to the immediate left.*

edge and held upright by permanent rail racks. With one dual hook crane, plate up to 40-ft. long and 8-ft. wide can be picked and carried to the shear line, often without manual handling other than adjustment of slings or grab hooks.



***WIDE VARIETY OF FLAME CUTTING** equipment is needed to turn out special shapes and to deal with extra thick plate sections. Unit, foreground, is cutting shapes from 11-in. plate. At right, and rear, circles are being cut in quantity. Pre-heat furnace is behind man, center, rear.*

Shearing is accomplished on a $\frac{3}{8}$ -in. Cincinnati unit or a new Pacific hydraulic mild steel capacity shear that will take thickness up to 1-in. and widths to 12-ft.

Crane operators are able to position the largest of plate sections on a 40-ft. long power conveyor that feeds directly into the Pacific shear. The shear line is located at the South end of the bay and adjacent to a 30-ft. wide truck driveway. If plate needs no further processing, it can be lifted directly from the power conveyor and into the waiting truck.

To cut plate that runs up to 10-in. thick and to make circles and special shapes, the Jorgensen bay is equipped with a concentration of six and eight torch flame cutters and one 12-torch model along with three circle burning units and a number of portable machines.

Stainless plate, carried up to 96-in. wide, is cut with torches combining nitrogen oxide flame with an iron oxide powder system. To improve quality of cut and to prevent thermal checking in aircraft and higher alloy plate, a new furnace, Jorgensen built, has been installed next to the cutting line. The plate pre-heat furnace can hold items up to 72-in. by 144-in. by 12-in. thick.

Plate inventories consist of carbon, stainless and alloy. Aircraft quality plate is stocked in annealed, normalized, and heat treated condition. Included in the Jorgensen inventory is 4130, T-1 plate, j-45, 8620, A-7 plate, super diamond plate, fourway plate, high tensile, abrasion resistant and high carbon types.

PACKAGING

with shock mounts

Here is how they can be used to advantage in packaging heavy electronic equipment.

TWO NEW TYPES of shock mounts, made from elastomeric compounds, are the key to a packaging and mounting system for items weighing 150 pounds or more and requiring protection from shock and handling during shipment and storage.

Developed by Lyon Aircraft Services, Burbank, Calif. division of Lyon Van & Storage Co., the mounting system is used in conjunction with modular metal containers produced by Zero Manufacturing Co., Burbank, Calif.

Since mountings and containers have been standardized, packaging engineering costs have been minimized and delivery speeded by using this system that according to William McCann, Lyon Aircraft Services, will dispel a lot of the "mysticism" associated with shock isolation.

Called Electro/suspension, elastomeric shear mounts perform dual service as shock isolators and mounting devices. Movements of force during handling—vertical, longitudinal and lateral—are transferred to a vertical shearing action. Built in two sizes, the small mount is used in 8 variations having spring rates from 240 lbs./in. to 730 lbs./in. The larger mounts come in 10 types with spring rates from 700 lbs./in. to 3,400 lbs./in.

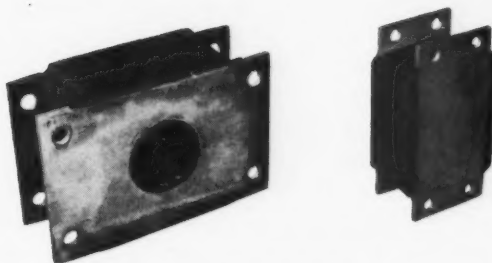
The elastomeric compound is sandwiched between flush metal mounting plates that will accept standard fasteners making for ease of assembly and disassembly with conventional tools.

According to Lyon spokesmen the mounting will reduce shock in G's about 10 X on the average with ratios varying from 5:1 to as high as 14:1.

Recently a Lyon customer needed to ship over 50 pieces involving fragile computers with allied electronic gear weighing in at about 700 pounds per unit. Packaging specifications called for a reusable modular container for protection against humidity and handling. Shock limits were set at 15 G's from a 24-in. drop.

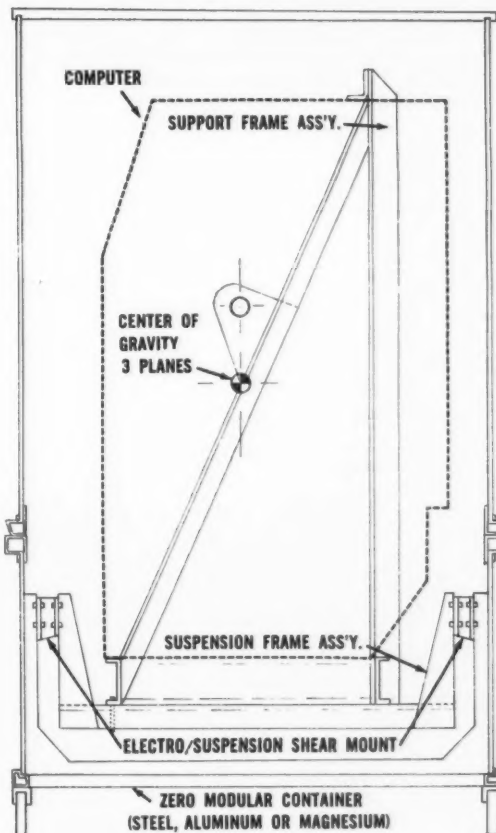
The computer was mounted inside the shipping container by a support frame that held the device at the center of gravity from 3 planes. The support frame in turn rested on a suspension frame in the bottom of the container. The suspension frame was supported by elastomeric shear mounts bolted to the frame and the container wall.

Total cost of mounting the computer for contain-



ELASTOMERIC SHEAR MOUNTS shown in two sizes with spring rates ranging from 240 lbs./in. to 3400 lbs./in. All movements of force in a given mounting are transferred to a shearing action. Average shock reduction in G's is about 10 times.

SCHEMATIC SHOWS suspension of computer inside modular shipping container. Package was designed to withstand 15 G's from a 24-in. drop. The 700-pound computer was held in the shock-mounted support frame assembly at the center of gravity of 3 planes.



erized shipment was between \$150 and \$175. Total cost of the reusable modular container, \$700. Due to high reusability factors, equated at N^n times (infinite), total packaging cost for the 50 item shipment came to about \$17.00 each. After customer delivery, empty containers are returned to the manufacturer for reuse.

A CONCEPT OF SAFETY

This Western firm places safety above all other considerations, and practices what it preaches.

HAVE YOU EVER HEARD of a plant executive losing a promotion because he was not sufficiently safety-minded or of a vice president holding monthly two day meetings with his general superintendents, during which, the entire first day was devoted to plant safety and the second day to problems of production, quality control, cost, etc.? This is the rule and not the exception at Columbia-Geneva Division of U. S. Steel.

This Western firm has a concept of safety that is found in few other companies. The concept itself, like most important ideas, is a simple one. It consists of placing the safety of employees above all other considerations.

The question comes up of why does this company place safety above all else? Many firms do not. Why is it any different? At one time, possibly there might have been a monetary benefit from reduction of man-hours lost, or by limiting the compensation costs of injuries. This is out of the question now. The amount of time and money expended on safety is all out of proportion to any monetary benefits derived. For instance, in just the tin finishing department at the Pittsburgh Works during a one month period (September 1960) 2898 personal safety contacts were made. In addition, there were 82 planned personal interviews, 192 safety huddles, 86 safety meetings, 88 unsafe act reports, 20 unsafe condition reports and 9 safety analyses. Injuries in Tin Finishing for the same period totalled 29, none of which were disabling. At the Pittsburgh Works, the present disabling injury frequency is 0.88 per million man hours of work.

The answer to this question obviously is not a monetary one and is all the more important because of this fact. Columbia-Geneva completely believes that safety is its own end result, that the firm has a primary obligation of safety to its employees and that the safer it makes its plants, the more effective its management is.

Perhaps the reason for this goes back into industrial history. In 1890 the H. C. Frick Coke Company, subsequently a subsidiary of United States Steel, initiated one of the first safety campaigns in the United States and at that time addressed a letter to its superintendents and mine bosses stating:



MAINTENANCE MAN locks control panel of machine before working on it. Lockout procedure includes tagging panel. This is standard safety regulation at Pittsburgh Works, Columbia-Geneva Div., U. S. Steel.

"We should always keep the fact prominently in mind that it is the desire of our Company and our duty as well, that we make the safety of the lives of our employees our first and most important business."

This led in 1905 to the first use of the slogan, "Safety First." This idea of "Safety First" has come down through the parent, U. S. Steel and is a basic operating concept at Columbia-Geneva.

However, this concept, like all important ideas, is valueless unless followed. Too often Western industrial firms have only paid lip service to safety. It has been one of those subjects that everybody is for but few people practice.

Columbia-Geneva, however, actually practices safety. More than that, the firm, by its actions, places safety first. This is extremely difficult to do for sales and production pressures are constantly present and this company has found that to make their concept of safety work, it must start at the very top. Only at the level of president can a decision be made that safety is more important than any other factor, and only at the top level can this decision be enforced.

In this firm the top personnel from the president on down believe that safety comes first. They practice it and they insist that everyone else in the firm also practice it. Thus, the safety concept starts at the top and goes down through every management level to the individual worker.

One of their beliefs is that safety is a direct func-

EDITOR'S NOTE—This article was started a number of months ago. To be exact, it came about as the result of a press conference held for L. B. Worthington, shortly after he left Columbia-Geneva Division, U. S. Steel to become Corporation president. At that time, J. D. McCall was also introduced as new president of Columbia-Geneva Division. Later in the conference, Mr. McCall was asked to comment concerning the opening of the mills. This was during the steel strike and the mills had just been reopened as a result of government action even though the strike was not over. With obvious pleasure, he stated that Columbia's mines and plants had been reopened successfully and safely. He placed great emphasis on the safe manner in which operations were resumed. We were told how the workers who had been away from their jobs for several months had been brought back in groups and thoroughly rechecked on safety procedures before going to work. This, to Mr. Worthington and Mr. McCall, was obviously of primary importance, even at a time when pressure for production must have been tremendous. When a company feels this strongly on a subject such as safety, it has a story to tell.

tion of management. This means that the same men responsible for production are also directly responsible for the safety of the men under them. If an injury occurs in a department, the department superintendent, his general foreman, and the Turn Foreman are held responsible. The safety department is not held responsible and is available only to aid and advise management. It has no line control over the safety measures in effect in the different plants and departments.

At Columbia-Geneva they feel that this is the only way to achieve results. Some firms, that have a safety department, place the responsibility for safety on this department. As a result, the safety department wages a constant fight with plant production and is at a decided disadvantage in getting things done. At Columbia-Geneva, this is never so, since the production people are responsible for both and they know that safety always comes first.

The firm feels so strongly about safety and its position as a function of management that they believe an executive who is lax in his attitude towards safety will be lax elsewhere in his planning. A man is not considered adequate to control others, unless he is effective in and alert to safety. This has resulted in executives not being promoted because of their safety records.

The chain of command for safety responsibility starts with the president, goes down to the vice president—Operations, and from there to the general superintendents in charge of the different installations such as Pittsburgh Works and Torrance Works in California and Geneva Works in Utah. In each installation safety responsibility goes down to the different mine and plant superintendents, general foremen, and foremen. It ends with the worker who is

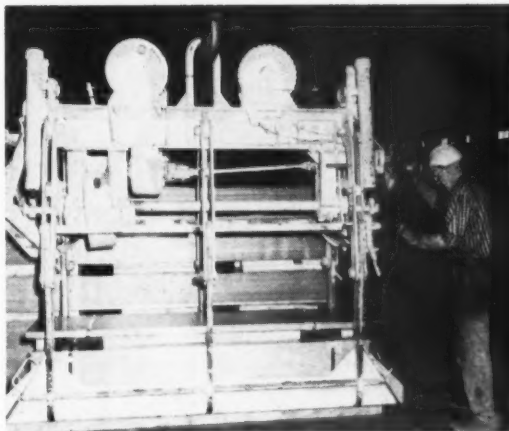
also held responsible for his own actions.

The safety group starts at Columbia-Geneva headquarters, where there is a safety section under Industrial Relations. In each installation, there is a safety department. Both groups function at their own levels but neither are charged with line responsibility for safety. The job of these safety people is to work up safety ideas and methods etc. They are available for advice, assistance, information, and planning. Thus, these groups provide the ammunition and technical assistance for those in management who are responsible for the safety of the people under them.

It is interesting to note that safety methods vary throughout Columbia-Geneva. When the division adopts a safety plan, information on this will go out to the different installations. While this plan must be accepted for installation, it may be changed in its adoption to meet a local situation: The different mines and plants in the division may also have a choice of whether or not to adopt a new safety program when it is not a directive order. What it amounts to is this. Each general superintendent and plant manager is responsible for the safety of his men. How he achieves this safety is his choice. If he feels that the plan will not work in his area or that he has something better already, that is his choice. But whatever method he uses, he must get results.

This does not mean that each superintendent does everything his own way. It merely means that within the general framework of the total safety program he has a leeway to determine what is best for his area.

The general safety program is itself an extensive one. This consists at the Pittsburgh Works, for instance, of having a complete set of safety rules, indoctrinating new workers in safety procedures involving getting to their jobs, as well as doing their specific jobs. It involves seeing that safety lanes are marked, electrical equipment is painted in a color code, adequate guards and handrails are provided and color coded, and many



HANDLING TIN PLATE this worker has on prescribed safety equipment for the job. He is wearing safety shoes, protective gauntlets, safety glasses and hard hat.

PITTSBURG WORKS
JULY 13, 1960
7:00 AM

COLUMBIA-GENEVA STEEL DIVISION

POTENTIALLY SERIOUS INJURY

INJURY: LACERATION BACK OF RIGHT HAND; FLEXOR TENDON INVOLVED



SCENE OF INJURY



NEW ARRANGEMENT OF DESK

ACTION: A TURN FOREMAN ON THE ELECTRO TINNING LINE INCURRED A SERIOUS CUT ON THE BACK OF HIS RIGHT HAND (TENDON INVOLVED). HIS RIGHT HAND STRUCK A TIN COBBLE THAT WAS BEING REMOVED FROM THE MILL AS HE WAS TURNING AWAY FROM THE FINISHER'S DESK.

RECOMMENDATION: DESK HAS BEEN TURNED SO THAT PEOPLE WORKING AT THE DESK WILL BE FACING THE MILL OPERATION.

INJURY FLASH, a mimeograph sheet containing the information and pictures shown above is circulated throughout Pittsburgh Works. This is done on injuries that point up possible potential injury situations. Note recommendation above and immediate change made to eliminate future occurrence.

other safety procedures followed. These procedures have reduced injuries in the steel industry over a period of years, and might be considered a starting point for the methods that have been initiated at Pittsburgh Works.

In 1951 a supplemental method or program to the general safety program was introduced. It was called the Single Objective Safety Program. This program consisted of compiling information on past minor injuries, finding out which occupations or occupational acts had the greatest frequency of injuries, spotting the critical situations which were causing them, determining what could be done to prevent them in each case, and taking appropriate action. This program was based upon all injuries that had already happened. It was very successful, so successful in fact, that several years later another program was adopted, called the 3C's of Safety.

This, in a way, was an extension of the Single Objective Program in that an attempt was made to spot causes of injuries before they happened and take action. In this program, jobs were analyzed and the possibilities for injury determined. Corrective action was then taken.

The present program is called "Knowing's Not Enough." It is an attempt to drive home the fact that knowing what is safe is not enough, that safety must also be practiced continually. A large percentage of injuries are caused now, not by lack of knowledge of safety procedures or equipment, but by not following these procedures, when it isn't convenient to do so.

An example of the manner in which safety is practiced at Pittsburgh Works is found in the tin plate plant

there. The plant supervisor conducts a safety meeting each week with his general foremen. He also meets monthly with other supervisors on safety. Each day, he or his assistant hold an informal 15 minute meeting with the general foreman. These are information passing sessions on common safety problems. The meetings are used to pass information down and at the same time receive information from below. In the plant, the supervisor, the foremen and safety engineers follow a constant procedure known as auditing. Certain safety rules are checked thoroughly throughout the plant to see if they are being upheld. Infringements are noted and action is taken. Auditing is a procedure found throughout Columbia-Geneva and has proved very successful. At the Pittsburgh tin plate plant, in certain departments where the procedure has been found effective, a safety huddle is held at the start of each shift. Each job has safety rules and guides and men are not moved to that job unless these are thoroughly covered. The individual job safety guides are gone over with each man twice a year. A complete indoctrination on general safety rules is given new men by the foreman or general foreman using a flip chart. Each man is contacted individually by his foreman for one to five times per week on safety procedures. The Tin Plate plant does not use a safety committee composed of workers although some other plants do.

Contrary to what one would think, most injuries are of types and from causes and equipment not limited to steel mills. For instance, cranes, fork lift trucks, machinery and steel storage areas are common to many plants. Injuries too are not necessarily of a disabling nature. In fact, few are. Many injuries, how-



INJURIES are eliminated by extensive use of "Danger" signs indicating possible places and situations that are potentially dangerous. Sign here indicates a blind corner that requires alertness.

ever, are classified as serious because they could have been disabling. The objective of the Pittsburg Works is to eliminate all injuries and to consider as potentially serious all injuries that could have been disabling.

When an injury occurs the foreman attempts to find out what happened and makes a report. If the injury is extremely serious or of a disabling nature, the superintendent and two foremen conduct an on-the-spot investigation. Even a minor injury is immediately investigated by the foreman. In either case, responsibility is assigned and recommendations made to prevent its recurrence. An individual is assigned to carry out the recommendations and a completion date placed on doing so.

What about the results from a safety program such as Columbia-Geneva's? The reason for the program is that safety is its own end result. Thus, results are considered in improvement of safety. This firm has made it safer to work in its mines and plants than at home. It has eliminated countless injuries before they ever happened and has reduced the disabling injury rate to a point where in 1959 it was 1.01 per million man hours of work in all the mines and plants. Company safety engineers believe that sometime in the future it will be possible to eliminate all disabling injuries. This belief, incredible as it might seem, has a technical basis, and is not just wishful thinking.

This article tells what one Western industrial firm has done to insure the safety of its employees. The program of Columbia-Geneva Steel has many effective ideas which might be considered by other firms interested in starting a safety program or improving present ones. Through the continuous interest of its top management in stressing the vital importance of industrial safety, this basic steel producer in the West has not only increased and improved the safety attitude of all levels of supervision but has equally

aroused the cooperation of all of the firm's employees.

This organization has a long tradition of safety behind it, and has had a program for safe working conditions in operation for many years. What it has done, can be done by other Western firms. It is being done by some. The pattern is set for others to follow—others who believe, as does U. S. Steel, "that we make the safety of the lives of employees our first and most important business."

Safety first is the basic philosophy behind its intent to ultimately arrive at the objective of injury Frequency Zero.



SIGNS such as this one help keep up interest in safety within the department. If not carried too far competitive attitude is considered valuable safety tool.



Unusual machine bends aluminum strips into complex corrugations.

IN RESPONSE to demand for techniques to perform specific metalworking chores, a growing number of proprietary tools and devices are being developed for use in Western plants.

Often high in initial cost and so specialized that they cannot be adapted for uses other than the original intent, they are still saving money by avoiding hand fabrication or in some cases more costly modification of conventional tooling.

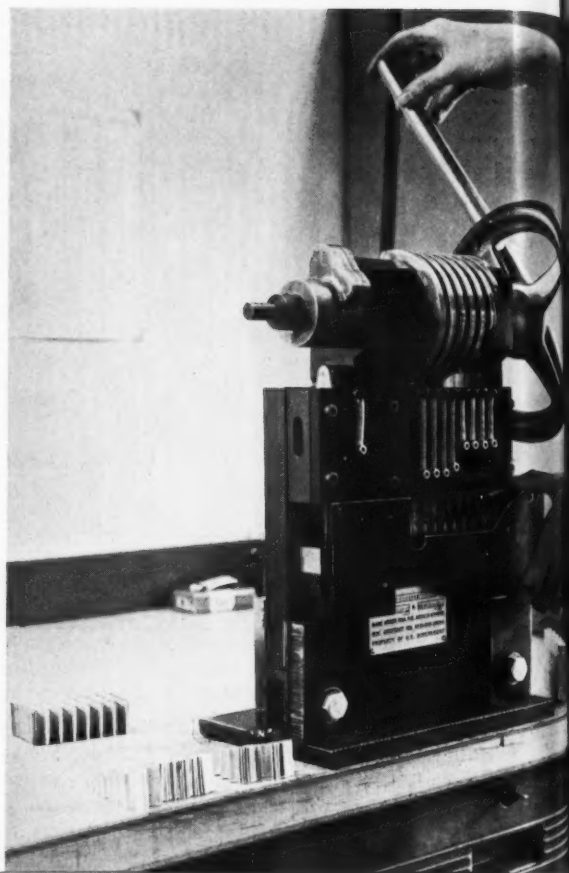
Horkey-Moore Associates, Torrance, Calif., fabricator of heat dissipators for electronic packages used in ground support and industrial applications is using a proprietary device to produce complex-shaped aluminum parts. These are placed in dissipators designed to cool transistors and other solid state devices.

The firm produces a series of plate-finned dissipators that are lighter in weight than conventional heat transfer equipment. Designed with closely grooved aluminum face plates that become integral with electronic circuit boards, they feature corrugated aluminum straps that are brazed to the face plate to provide conductive media for the flow of liquid or gaseous coolants.

Straps made from 3003-S aluminum had to be formed into difficult, close tolerance shapes. Hand fabrication would be too slow and costly in production and the light gauge aluminum would not stand the shock of a conventional stamping operation.

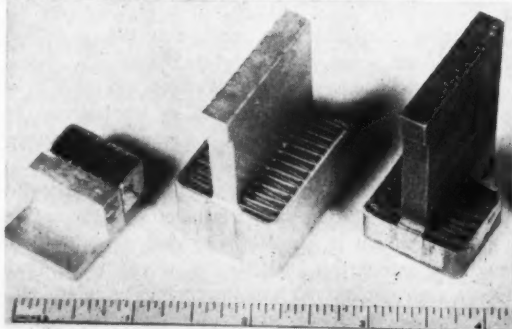
Solution was found in use of a small, bench-mounted corrugating machine that takes pre-cut strips of sheet aluminum and literally stretches them into complex corrugations. The machine is hand operated. As a shaft is turned, lobes on a series of cams activate teeth that push the strip downward into a series of depressions.

The machine carefully stretch-forms the thin metal into shapes holding tolerances to $\pm .002$ -in.

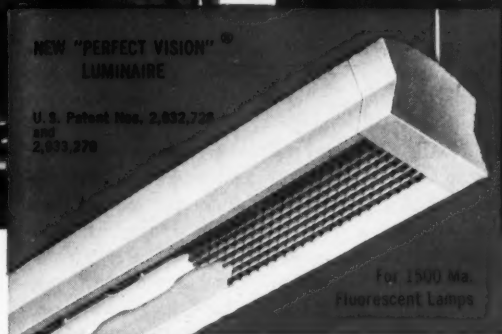


OPERATOR PULLS LEVER to activate cams that push teeth into depressions to form aluminum strip into corrugated shapes. Proprietary device was developed by the electronics division of a Southland aerospace firm.

CORRUGATIONS FITTED into miniaturized heat dissipators are used for conductive media for liquid or gaseous coolants. Capacities range from 1 to 10 watts of dissipation. Units can cool two or more transistors simultaneously.



a sensational new advance in lighting technique
from **SMOOT-HOLMAN**



John Murray, Supervisor of Electrical Engineering Section, Plant Engineering Dept., Douglas Aircraft, and Jim McCormick of Smoot-Holman make final inspection of Missile Group Engineering Department, Culver City, California.

HERE'S WHY DOUGLAS AIRCRAFT CHOSE "PVs"

- **BETTER LIGHTING** "PV" means Perfect Vision[®] Lighting and that is exactly what Douglas wanted and got for its engineers. The initial foot candle reading in every section of the 120,000 square foot room illustrated above was *in excess of 200 foot candles* with no glare or hot spots.
- **LOWER FIRST COST** The *installed* cost of fixtures was slightly less than \$1.20 per square foot (fixtures 90 cents, installation cost 30 cents).
- **LOWER MAINTENANCE COST** Maintenance of fixtures has been reduced to a minimum through proper design. Porcelain enamel inner reflector and metal louvers in bottom of fixtures prevent dust or bugs from collecting so eliminates need for frequent

cleaning. Perfect ventilation increases lamp life.

- **NO NOISE—NO HEAT** Ballast sound (hum) is eliminated in working area through unique method of installation whereby the isolated ballasts are suspended above the ceiling and connected to fixture with a flexible wireway. Ballasts located in this manner dissipate heat above the ceiling so it does not reach working area. Cost of air conditioning is reduced.
- **CREDITS** Mr. Murray pictured above has this to say: "Smoot-Holman, working with Holmes and Narver, Inc. (Consulting Engineers) and Pacific-Western Co. (Electrical Contractors), have accomplished a superb lighting job."

Write for detailed information

SMOOT-HOLMAN Company
ESTABLISHED 1915



Inglewood, California



... for more details, circle No. 22 on Reader Service Postcard

WESTERN BUSINESS CONFERENCE

Here is what leading authorities think about Western industrial growth in 1961.

A DECADE THAT WAS PEGGED the sizzling and soaring sixties one year ago has been redesignated something like the "serious sixties" in the West with industry taking a hard look at costs, taxes, competition, profit margins and developing active plans to boost production to ease these economic pressure points.

And if the Industrial West shares the optimism of General Telephone and Electronics president Don G. Mitchell, who addressed the 1961 Business Outlook Conference in Los Angeles, it will see an economy resurging to new records by year end.

Held under Los Angeles Chamber of Commerce sponsorship, the meeting hosted more than 600 representatives of business and industry who heard more than a dozen top economic and business specialists probe 1961 potential.

Overall consensus of the experts? Current business climate changing by the second half of 1961 with a marked return to inventory accumulation. New efforts at production gains by industry to reach wider markets. Careful watching of production costs.

Fitting in with the conference setting was emphasis on the West and California in particular, considered the prime Western industrial market and expected to have a 1961 income running 13% ahead of national averages.

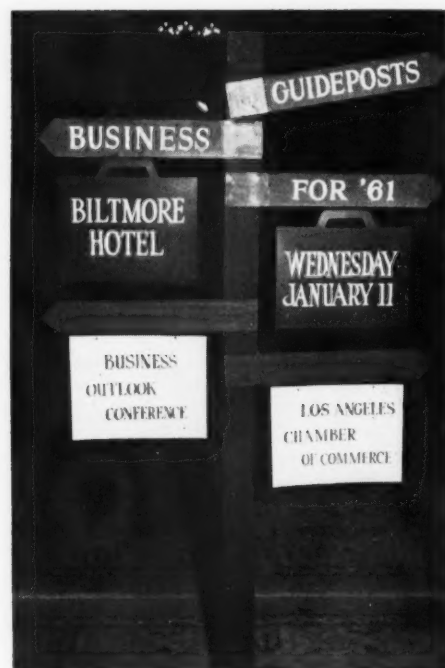
Dealing with the greater Los Angeles industrial area, conferees examined figures proving that 1960 was the greatest period of growth in four years. About \$200 million plus was invested in new plants and expansions, some \$44 million over 1959.

According to Harlan W. Holmwood, chairman of the Chamber industrial development committee, 43 new locations and 194 plant expansions made up this total. Holmwood listed Fruehauf Trailer, Mead Packaging, Taylor Forge and Pipe, R. C. Mahon Co., Carborundum and Pacific Abrasive as among new Los Angeles manufacturing enterprises.

Turning to one of the mainstays of the West, defense and aerospace, W. J. Pattison, vice president, sales, Garrett Corp., told BOC participants that he looked ahead to the coming 12 months with cautious optimism.

Some of this is based on an "inevitable increase" in the defense budget that might reach \$43.5 billion this year, with forecasters looking to an annual high ranging from \$49 to \$55 billions in a decade.

Adding to this fund will be the outlay of NASA-National Aeronautical and Space Agency—estimated



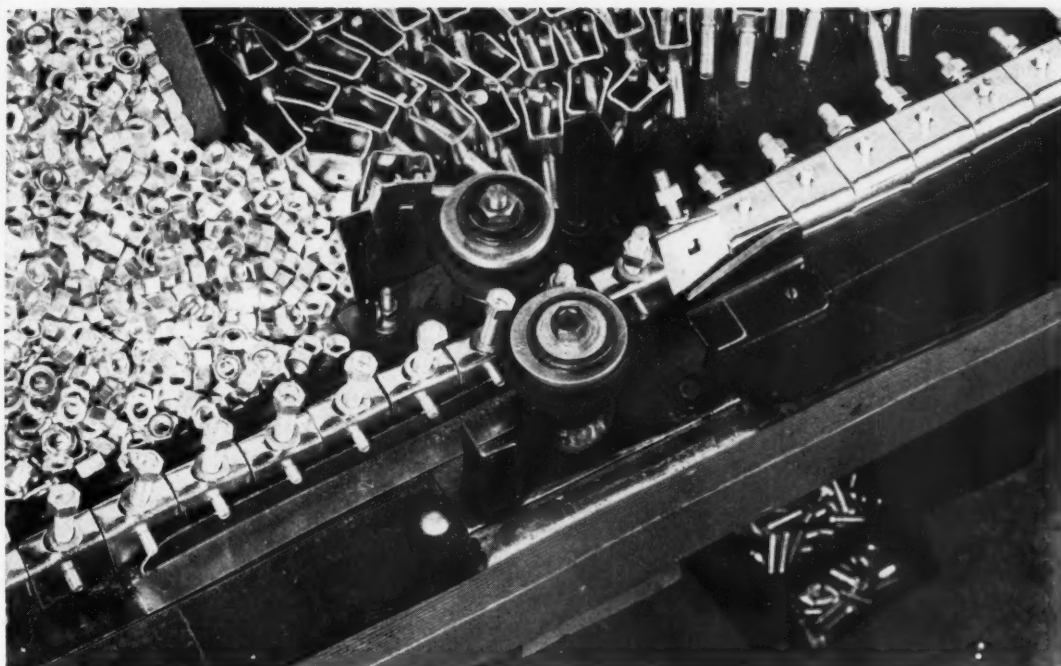
by Pattison at \$500 million this year, just under \$1 billion next year, and possibly \$2.2 billion in 1970. He emphasized that greater and greater portions of these monies will go for research and development rather than into immediate production of hardware.

Pattison described the trend in defense contracting that is spreading benefit throughout the West, taking the current Boeing Minuteman program as an example. Boeing has gone to Thiokol in Brigham City, Utah for the first stage propulsion system; Aerojet General, Sacramento, Calif., for the second stage; Hercules Powder, Baccas, Utah, for the final stage. Locally, Autonetics is supplying the guidance system.

Turning to Air Force outlay, Fiscal Year 1962 is expected to see expenditures of \$19 billion. Five billion of this is slated for aircraft, \$3 billion for missiles, and \$1 billion for other weapon systems. He described the B-70 Valkyrie program as a bright spot with funding now standing at \$265 million and additional money during fiscal year 1962 possibly reaching \$400 million.

Navy expenditures are expected to total \$13 billion in fiscal year 1962. Direct procurement of weapons will take \$4.5 billion of this, he said, with aircraft scheduled for \$1.5 billion, missiles \$500 million, shipbuilding \$1.8 billion and \$700 million for assorted projects. The Polaris is of major importance to the West, he added, with the 1961 budget topping \$1.234 billion and a like amount requested for next year.

In regard to non-military aspects of this field in the West, conferees were told that commercial transport, advances in turbojet engines, and new emphasis on airframe design will boost economies of the commercial and cargo industries.



CLOSE UP of hanger clamp assembly line with guard removed showing rubber wheels that automatically screw down nut. Note also how as clamps leave wheels they are cammed on their side so that second bolt is upright and nut placed on it can be screwed down by second set of wheels.

CLEVER FIXTURES solve manufacturing problems

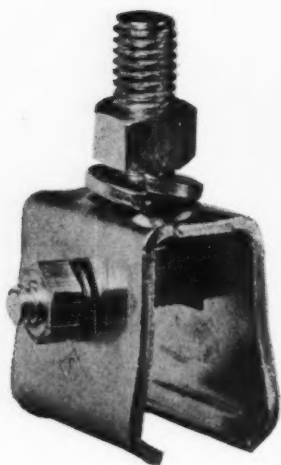
Diversified items with varied production runs call for good planning plus ingenious manufacturing techniques.

DIVERSIFIED PRODUCTION presents a challenge to plant manufacturing and engineering personnel. Because a wide variety of items are manufactured, the equipment used must be on the general purpose side. Rarely does the volume of any one item justify expensive special machinery. The solution in many cases lies in developing clever fixtures at a cost that will justify their construction in relation to the manufacturing volume of the item.

Insul-8-Corp. of San Carlos, California is an excellent example of a firm with diversified products. This company operates three divisions: One, its Insul-8-Bar Division manufactures a line of safety electric

trolleys systems for crane and monorails. Two—its Vicon Division manufactures industrial television equipment for electronic products. Three—its Engineered Products Division does contract manufacturing for the missile and other industries. This firm operates these divisions in two adjacent plants, one equipped for electronic and the other for mechanical manufacturing it has integrated its overall management and control in such a way that it can move fast on special jobs if quick delivery is required, while at the same time performing efficiently on a regular scheduled production basis for its proprietary items.

In the metalworking plant a wide variety of items



CLOSE TO 1,000,000 of these hanger clamps are made and assembled each year. Other photos show clever assembly operation.

are manufactured. Some are extremely limited in their production runs; others are catalog items with a relatively high production. Some of the items have tolerances in tenths of a thousandth, while others are much less critical. Thus Insul-8 is faced not only with a diversification of items but a wide variation in volume and tolerances of the items. Perhaps the most outstanding feature of Insul-8's production techniques is the clever fixturing that has been developed for different jobs. The firm manufactures a "U" shaped hanger clamp which is used in quantity in the installation of Insul-8's bus bar. Production is between 800,000 and 1,000,000 clamps per year. In the assembly of this clamp, two bolts are inserted, one, a $\frac{3}{8}$ -16 bolt through a hole at the base of the "U," the second, a $\frac{1}{4}$ -20 bolt through two holes at the sides of the "U." On each of these bolts a lockwasher must be placed and a nut screwed down on it.

To do this repetitive job an inexpensive and effective assembly line has been developed. Production on this assembly line is 1000 pieces per hour against a previous production of .350. This one fixture has cut the complete cost of clamp manufacture and assembly approximately 25%.

The line is composed of a tubular rail on which hanger clamps with the bolts inserted are placed and pushed along by the first operator. Clamps are held upright by a piece of angle iron from which parallels the rail. A second worker adds a lockwasher and nut to the vertical $\frac{3}{8}$ bolt. As the clamps are pushed along they pass between two spaced rubber wheels which spin in the same direction. These catch the nut and screw it down tight. After the first set of rubber wheels the angle iron is no longer used and a cam turns the



ASSEMBLY LINE for hanger clamps needs only three persons, has high production, was constructed inexpensively.

clamps over on their sides so that the second bolt is facing up.

At this stage a third worker adds a lockwasher and nut to the $\frac{1}{4}$ -in. bolt. Clamps are pushed through a second pair of rubber wheels and the second nut is run down. The assembly is then completed.

Both sets of rubber wheels are powered by a small fractional horsepower electric motor located under the table. The second set of wheels receives its power through a small V-belt. Gearing handles the problem of turning each set of wheels in the same direction. The wheels are composed of two steel discs with a rubber wheel in between. The rubber is replaceable

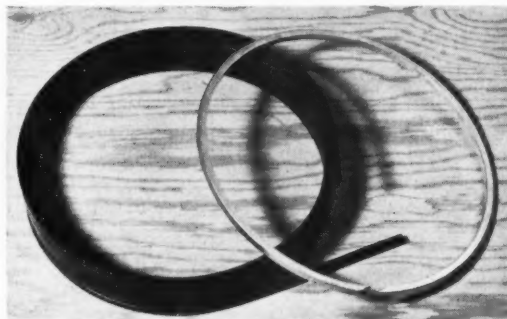


PHOTO SHOWS coiled bar prior to milling on fixture and finished rings. Rings after milling are plated.



←
MILLING CUTTER is cutting through coil clamped on fixture. Final result of single operation is six holding rings. Rings formerly were cut and bent one at a time.

and wheels are changed every 4-5 months as they wear down. There is no need for spacing adjustment on the

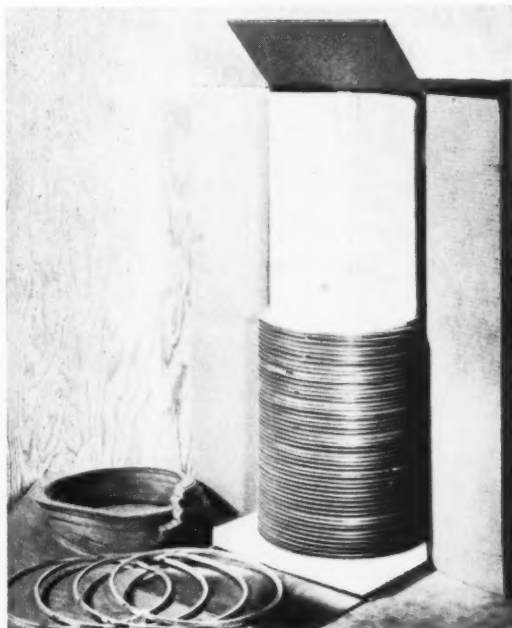
wheels since the rubber is flexible. Replacement cost of wheels is a minor item.

Another clever fixture has been developed to manufacture holding rings. The rings, 10 3/16-in. in diameter are made from 4130 steel. Stock used is 1/4-in. square with a 1/4-in. angled slot opening. When finished, rings are cadmium plated and have a critical tolerance of .005-in. surface smoothness.

These rings are manufactured on a contract basis in lots of 11,000. Previously the rings were made by cutting individual pieces off a bar, milling the two ends and forming the individual ring.

The firm has developed a method of forming an 8-ft. bar in a coil. A milling fixture was built, over which this coil could be placed, and clamped down tight. At one point this fixture is slotted so that a 1/4-in. milling cutter can make a correct angular cut through the coil. The cutter then cuts down through the entire coil producing six holding rings. This method has reduced the cost of manufacturing rings by approximately one-third.

An interesting method of packaging the rings is also used. A 1 1/2-in. thick piece of styrofoam approximately 12-in. square has an opening in its center. Into this opening an interior fitting is positioned. Rings are placed over this fitting, each ring being interspaced with a thin cardboard ring to guard against rubbing. The fitting holds 98 rings. When filled, a top of styrofoam identical to the base is placed on the fitting. The complete unit is inserted in a fiberboard carton 29-in. long by 12-in. wide by 12-in. deep, and the unit shipped. This internal fitting assembly has been set up as returnable packaging. By eliminating hand wrapping of parts, and providing a package easy to handle and free from damage, the method has proved very successful.



INTERESTING METHOD of packaging finished rings. Rings are slipped over form with cardboard rings in between. Top and bottom of form is styrofoam square. Completed form holding 98 rings is packaged in fiberboard carton.



HELPFUL LITERATURE

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WIRE MARKERS FOR ELECTRONICS

Bulletin contains a listing of over 400 different miniature wire markers for permanent or temporary identification of small wires and electronic components. Includes complete application information and specifications for all four sizes of wire markers. Technical and engineering data is set up for fast reference. *W. H. Brady Co.*

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PAPER TAPES FOR INDUSTRY

Folder describes the versatility of paper pressure-sensitive tapes in industry and their various physical properties. Application photos show how paper tapes are used as an industrial tool for protecting, sealing, holding, general masking, maintenance and packaging projects. *Minnesota Mining & Mfg. Co.*

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POLE BUILDINGS

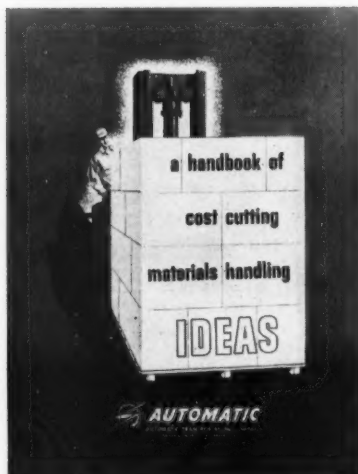
Bulletin outlines the advantages of pole building designs where quickly-erected, permanent facilities for warehousing, manufacturing or office use are contemplated. Discusses the versatility feature of the pre-engineered buildings, flexibility, quick erection, weather tight and fire protection features. *Koppers Co., Inc., Wood Preserving Div.*

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AEROSPACE BOLTING

Selection guide covers 120 different aerospace bolts including tension and shear bolts, engine bolting, titanium and specialty fasteners. Gives sketch of each, numerical designation, fastener type, material tensile strength or other strength rating, temperature range, and companion nut. Half of the 24-page guide is devoted to a review of the firm's reliability practices. *Standard Pressed Steel Co.*

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MATERIAL HANDLING IDEAS

New 80-page handbook on cost cutting material handling ideas contains discussions of current material handling problems giving pros and cons of narrow versus wide aisles, walkies versus ride-type trucks, specials versus standard trucks, pallet versus palletless handling. Also a thesis on how to analyze material handling in plants and flow charts. *Automatic Transportation Co.*

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JACK AND SKID

A jack and skid system that eliminates "flooring" and rehandling of loads by providing storage plus instant mobility is the subject of this bulletin. Describes construction, features and operation. Table gives dimensions and weights. *Nutting Truck & Caster Co.*

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MOTORS AND GEARMOTORS

Bulletin covers an extensive line of electric motors to meet a broad field of application requirements. Features 23 types of motors with photos and brief descriptions on application uses and available ratings, enclosures and modifications. *Louis Allis Co.*

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RECESSED LIGHTING

A guide to the latest in recessed lighting, this 36-page catalog includes an illustrated description of line of recessed troffers. Also contains detailed mounting information and coefficients of utilization and photometric data for each fixture, with various light controlling panels. *Smoot-Holman Co.*

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LOW VOLTAGE EQUIPMENT

This 92-page catalog covering low-voltage distribution equipment provides complete data on heavy-duty switches, current-limiting fuses, hinged wireway, circuit breakers, switchboards, motor control centers, power distribution centers, and all types of panelboards and busway. *General Electric Co.*

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SELF-LOCKING BOX

Brochure about a self-locking, nail-less-closure wooden box that is durable and versatile enough to serve as a material handling vehicle from subcontractor's plant to warehouse, through receiving inspection and rework of contents, then to storage and from storage to production line where disposal of container is quick and easy. *B&F Box and Lumber Co.*

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PALLETLESS CARTON CLAMP

A palletless carton clamp that is designed to lower handling cost by elimination of pallets and pallet maintenance problems is described in this bulletin. For use on all 2,000 to 5,000 lb. capacity gas and electric powered fork lift trucks, carton clamp specifications are included along with a discussion of features, advantages and applications. *Clark Equipment Co., Industrial Truck Div.*

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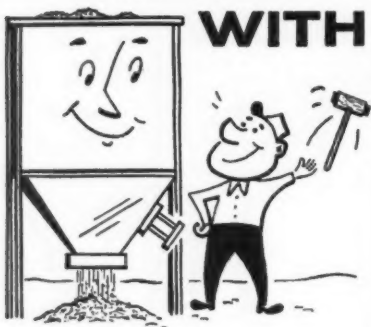
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OF A WELDOR
REACHING FOR
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HAND TRUCK DATA

A 40-page, profusely illustrated catalog contains pictures, descriptions and full specifications for line of two wheel and platform trucks for plants, warehouses, institutions, retail stores, mills, transportation terminals and others. Includes chart of recommended load ratings. *Fairbanks Co.*

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ANODIZED ALUMINUM GRILLES

Manual provides complete product specifications on wide choice of standard geometric patterns, dimensions and colors of architectural anodized aluminum grilles. Includes industrial and commercial design use in new construction and modernization. Illustrated with technical drawings. *Klemp International*

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CHARTS AND INKS

New 25-page chart and ink catalog gives complete story of how firm's charts and inks are made. Lists the mostly commonly used strip and circular charts, pneumatic and electric charts. Covers general types of recording inks, ink selection and maintenance recommendations. *Minneapolis-Honeywell Regulator Co.*

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PRESS BRAKE DIES

Over 360 drawings of standard and special press brake dies are contained in this new catalog. The drawings are outlined in black but all solid steel surfaces are shown through the use of metallic inks. Lists standard and special, single and multiple bend forming, blanking, notching and punching dies. *Valeron Corp., Press Brake Div.*

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WESTERN PINE DIRECTORY

More than 450 mills are listed in the newly published 1961 membership directory of the Western Pine Association. The 28-page book, the lumber trade's buying guide to sources for Western Pine Region lumber products, also includes listings on each mill for species, products, capacities, plant locations and seasoning, branding and unitizing services. *Western Pine Association*

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CHARGER-BATTERY COMBINATION

A combination battery and charger for standby starting of gasoline or diesel engines is the subject of this bulletin. Describes features of the battery including lead-calcium plates and non-aging parts so that the charger requires practically no attention. *C & D Batteries, Div. Electric Autolite Co.*

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CUSTOM LEASING TRUCKS

Details of a new custom leasing plan which provides a choice of industrial truck rent-lease-purchase arrangements tailored to fit the exact requirements of any customer are outlined in this booklet. Discusses five programs available under the custom leasing plan. *Hyster Co.—Hyster Leasing Div.*

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CLOG-PROOF MARINE WINCH

A unique, one-man, clog-proof winch for marine and other industrial uses is the subject of this bulletin. Explains use of pin gears instead of spur gears in this winch, new instant ratio speed changes and other features of the newly developed winch. Covers specifications and applications. *Western Gear Corp.*

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PACKAGED HYDRAULIC SYSTEMS

The application of packaged hydraulic systems to solve a wide range of process control problems is the subject of this bulletin. Illustrations show typical packaged hydraulic systems and installations. Advantages of hydraulics in process control are listed and standard components are illustrated. *Vickers Inc., Div. of Sperry*

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VINYLLIDENE FLUORIDE RESIN

Booklet about a totally new fluorine-containing thermoplastic resin designed for long life and high performance in environments which degrade less stable materials. Discusses applications, resin forms and structure, physical properties, chemical resistance, electrical properties, low temperature properties, fabrication and other pertinent data. *Pennsalt Chemicals Corp.*

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WESTERN INDUSTRY/FEBRUARY 1961

HIGH PRESSURE ACETYLENES

Ready-reference data folder on line of high-pressure acetylene derivatives. Each of the products are described in detail, covering chemical structures and physical forms as well as a listing of properties and uses. *Antara Chemicals, Div. General Aniline & Film Corp.*

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TEMPERATURE CONVERSION

A new temperature conversion chart printed on both sides of a single durable sheet permits rapid, accurate conversion from any scale: Kelvin, Rankin, Centigrade or Fahrenheit, to any other scale. Range is from absolute zero to 16,000 degrees C. *Rosemount Engineering Co.*

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PROJECTION WELDING

Twenty-page brochure on projection welding low carbon steel with embossed projections gives detailed information on projection welding techniques, projection forming tools, welding electrodes and joint design. Macro-photos trace the development of a projection weld under different conditions. *Taylor Winfield Corp.*

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STITCHING WIRE

New booklet contains two-inch samples of 25 different types of stitching wire. A number of new items in the sample book include round tinned and flat tinned bookbinders' wire, as well as coppered steel, K bronze and tinned K bronze flat box stay wire. *H. K. Porter Co., Riverside-Alloy Metal Div.*

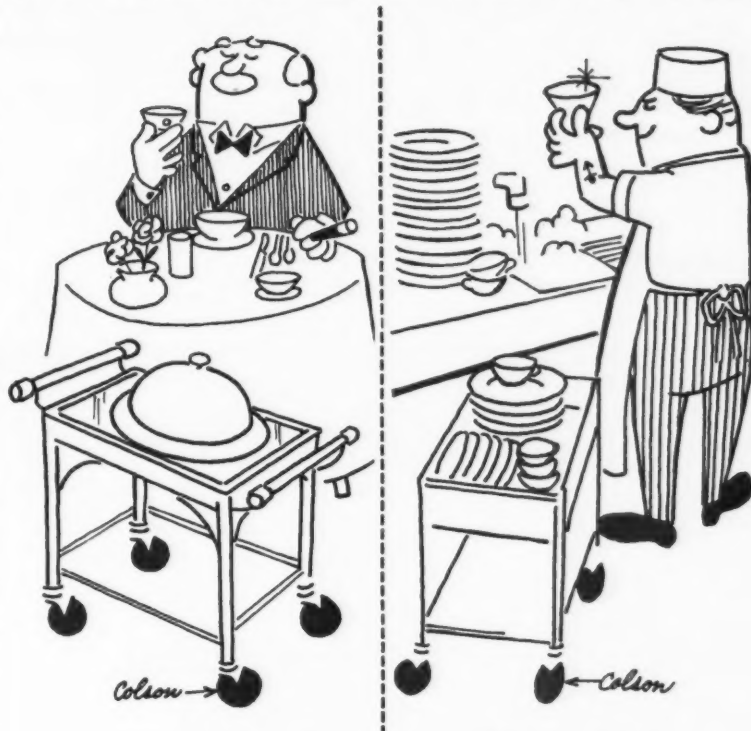
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MIXER TYPE WELDING TORCHES

Torches capable of welding any metal thickness from 28-gauge sheet to heavy plate are described in this booklet. Outlines features of maximum performance, minimum maintenance, simplified operation, easy handling and quick head changes. Describes handy cutting attachments, includes performance data on a complete selection of welding heads and cutting nozzles. *Linde Co., Div. Union Carbide Corp.*

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LITERATURE ADVERTISED IN THIS ISSUE

Color horizons catalog, sample of damp proof red primer and data on rust-stopping qualities of fish oil. *Rust-Oleum Corp.*

Page 13 Circle No. 11

Super diamond floor plate is easy to fabricate, clean and safe. *Alan Wood Steel Co.*

Page 10 Circle No. 8

"T-I" constructional alloy steel casting data. *Alloy Steel & Metals Co.*

Page 90 Circle No. 59

Extruded rods made from new metals, full data. *Ampco Metal, Inc.*

Page 59 Circle No. 27

Precision forgings for most critical requirements. *Arcturus Mfg. Co.*

Page 33 Circle No. 20

Vibrators for materials moving to bins. *Cleveland Vibrator Co.*

Page 52 Circle No. 23

Conveyor systems engineered for any industry. *Chainveyor Corp.*

Page 79 Circle No. 48

Versatile storage rack, new safety white series. *Palmer-Shile*

Page 24 Circle No. 19

Pillow blocks with metal backed synthetic seals. *Dodge Mfg. Corp.*

Page 12 Circle No. 10

Conveyor that teams up flexibility with portability. *California Conveyor Corp.*

Page 60 Circle No. 28

Caster and wheel selection manual. *Darnell Corp.*

Page 74 Circle No. 43

Fork lift tractor for reliable indoor and outdoor performance. *Frank G. Hough Co.*

Page 73 Circle No. 42

Industrial tires with resistance to rim separation. *Monarch Rubber Co.*

Page 61 Circle No. 29

Radio pager system for immediate contact, private messages. *Motorola Communications & Electronics, Inc.*

Page 77 Circle No. 45

Heavy duty A-C welder, complete data on 300 or 500 ampere welders. *Miller Electric Mfg. Co.*

Page 83 Circle No. 51

Interchangeable quick disconnects for air, gases, liquids. *Perfecting Service Co.*

Page 67 Circle No. 35

Well-planned lighting for industry, what's new booklet. *Pacific Gas & Electric Co.*

Page 17 Circle No. 13

Hoists of efficient design, rugged construction. Catalog. *Chisholm-Moore Hoist Div.*

Page 93 Circle No. 62

Unit work benches with interchangeable accessories. Catalog. *Columbia-Hallowell Div., Standard Pressed Steel*

Page 7 Circle No. 5

Midget tools for fast assembly of tiny components. *Snap-on Tools*

Page 72 Circle No. 41

Paint finishing bulletin. *J. O. Ross Engineering.*

Page 36 Circle No. 21

Industrial gloves and protective garments. *Wicx-Merit Glove Co.*

Page 68 Circle No. 37

Battery-powered electric trucks, booklet on advantages of their use. *Gould-National Batteries, Inc.*

Page 6 Circle No. 4

Blowers for maximum air moving performance. *Master Fan Corp.*

Page 55 Circle No. 25

Storage rack system with exclusive double lock design. *Multi-Rack Systems Div., Green-Penny Co.*

Page 57 Circle No. 26

Interchangeable shelving for light or heavy loads. *General Fireproofing Co.*

Page 63 Circle No. 32

Safety showers that wash away dangerous irritants. *Haws Drinking Faucet Co.*

Page 82 Circle No. 66

Conveyor pulleys for virtually all requirements. *R. & J. Dick Co., Inc.*

Page 69 Circle No. 39

Valves for the most rigid specifications. *Allied Supply Co.*

Page 8 Circle No. 6

BLAST CLEANING BARRELS

Exclusive features found in standard-duty line of blast cleaning barrels is described in this bulletin. Well illustrated with diagrams and photographs, the booklet contains brief specifications and dimensions of each of the five sizes ranging in capacity from 1½ to 18 cubic feet. Also case histories. *Pangborn Corp.*

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NONDESTRUCTIVE TESTING

Bulletin describes a line of ultrasonic testing equipment, portable industrial X-ray and magnetic particle inspection equipment and supplies.

Explains principles of each method of inspection, operation and applications for each method. *Sperry Products Co., Div. Howe Sound Co.*

MOUNTED DRIVES

A line of shaft mounted drives and a new series of flange mounted drives covering a torque range up to 44,000 lb.-in. are presented in this bulletin. Design and construction advantages are included as well as selection and dimensional data, engineering drawings, accessories, and typical application photos. *Falk Corp.*

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METAL STAMPINGS

Bulletin about metal stampings in small lots contains a section devoted to suggested basic designs and an idea section highlighting conversion of castings to stampings, combining stampings to eliminate the number of parts and uses of laminated construction. *Dayton Rogers Mfg. Co.*

ZINC ALLOY DIE CASTINGS

Key pointers for producing sound zinc alloy die castings and the various factors that make this possible are contained in this pocket-size handbook. Covers alloy composition, alloy and die temperatures, gating and venting, injection pressure, surface finish as well as basic rules for machine and die care. *Henning Bros. & Smith, Inc.*

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SOLID STATE ALARM UNIT

Brochure describes a new solid state alarm unit that provides engineers with a reliable solution to temperature monitoring problems in the chemical, metalworking, steel, oil, nuclear and electronics industries. Covers features, operation, and installation data. *San Diego Scientific Corp.*

SPEED INDICATOR UNITS

Features of a line of tachometers for electric motor RPM, press speeds, conveyor travel FPM, spindle yarn speed, extruding metals and many other industrial applications are described in this bulletin. *Westberg Mfg. Co.*

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PRODUCT FINISHING

Nine automatic machines for high production product finishing are illustrated and described in this brochure. Discusses advantages of machine finishing over hand methods of decoration of products of all sizes and descriptions. *Conforming Matrix Corp.*

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AIR-POWERED, ELECTRIC TOOLS

Complete line of portable air-powered and electric tools are set forth in this 72-page catalog. Catalog sections deal with heat drilling, fastening, abrasive and special tools such as saws and routers, also electric tools and accessories. *Buckeye Tools Corp.*

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STANDARD TEMPLATES

Bulletin contains a set of full scale tracing templates designed for companies who manufacture jigs, fixtures and special machinery. Includes over 200 components used by industry most often. Points out advantages of using standard templates. *Northwestern Tools, Inc.*

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INTEGRAL DISTRIBUTION CENTERS

Publication discusses advantages of new dry-type integral distribution centers featuring quiet, high-temperature dry-type transformers for applications up to 5,000 volts. Describes space-saving benefits and construction features of typical integral distribution center. *General Electric Co.*

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INSTRUMENT BEARINGS

Catalog contains 40 pages of dimensional information as well as practical engineering and application data on miniature and instrument precision ball bearings. Includes all the data necessary for the selection and specification of ball bearings for modern instruments. *Fafnir Bearing Co.*

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ROLL FORMED SHAPES

Bulletin describes techniques used in roll forming shapes from aluminum, brass, copper, zinc, titanium; galvanized, stainless and carbon steels; painted, clad and vinyl coated metals. Shows various vinyl and embossed decorative finishes available and gives examples of how punching and notching operations can be combined with roll forming. *Roll Formed Products Co.*

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PORTABLE PACKAGING MACHINE

A new packaging machine designed to provide manufacturers with a system of packing that cuts time, reduces material and handling costs and insures protection against breakage is the subject of this brochure. Applications include quick on the spot packaging of many parts such as screw machine products, electronic components, spare parts and hardware. *M/P Co.*

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SPECIAL MANUALS

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CRANES — CONVEYORS — HOISTS

Conveyors

Standardized Conveyors for Bulk Materials

A ready-to-erect belt conveyor that can be shipped from stock, that is rugged in construction, easy to alter, and has a capacity range to 480 tons per hour is the subject of this manual. Describes construction features, accessories and applications of the belt conveyor series. *Barber-Green*.

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Adjustable Pressure Conveyor

Photos and diagrams illustrate principles and features of wheel and live roller adjustable pressure conveyors that permit accumulation on powered horizontal conveyor with no pressure build-up. Photos of actual installations show how this type of conveyor is serving industry in warehousing, order selection, shipping and other areas of operation. *Rapids-Standard Co., Inc.*

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Table Top Conveying

Brochure about a new table top made of acetate resin for use where operating conditions are continuously wet, where cleanliness is a must and where lubricants cannot be used. Discusses features of the new introduction, advantages as well as applications. *Chain Belt Co.*

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Roller Gravity Conveyors

This 49-page handbook is for the industrial engineer desiring fresh insight into the design, construction, and particularly the application of roller gravity and wheel conveying systems. Includes detailed engineering and dimensional data, design and application information, and also suggests situations in which roller conveyor has limitation. *Lamson Corp.*

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Continuous Power Conveyor

A profusely illustrated 64-page catalog devoted to a chain type conveyor for handling continuous production items. Covers standardized units, flexibility of the system, capacities, typical layout of complete system and many application examples. *Richards-Wilcox Mfg. Co.*

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Conveyors for Small Parts Assembly

This 49-page catalog is designed to serve as a field handbook on good practices in materials handling as well as a complete list of conveyors, parts and accessories, both gravity and power. Includes description of a small diameter conveyor for application where cans, bottles, small packages and parts are to be handled. *Peterson & Peterson Equipment Engineers*.

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Continuous Vertical Conveyor

A new kind of continuous vertical conveyor system that takes less floor space, is self loading and self unloading, and has a wide range of uses is the subject of this bulletin. Explains operation of the vertical conveyor, how it is different, and suggested applications. *Standard Conveyor Co.*

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Versatile Overhead Conveying

An adaptable conveyor system that runs horizontally, straight up, or straight down, in, out and around, or upside down, and that can be used in all types of industry for handling loads up to 60 lbs. per foot, is outlined in this booklet. Describes ease of installation of prefabricated components, pictures typical installations and layouts. *Chainveyor Corp.*

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Conveyors for Raising or Lowering Loaded Pallets

Bulletin includes photos and diagram of a conveyor that serves two levels with entry or discharge from either side of the structure. Explains operation and installation of the conveyor. Also covers automatic pallet loading machine. *Alvey Conveyor Mfg. Co.*

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Roller, Wheel, Belt, Chain and Special Conveyors

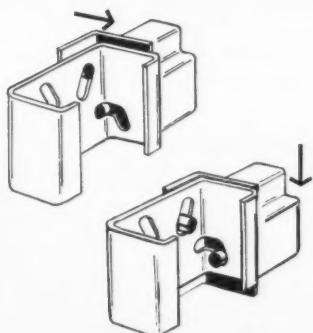
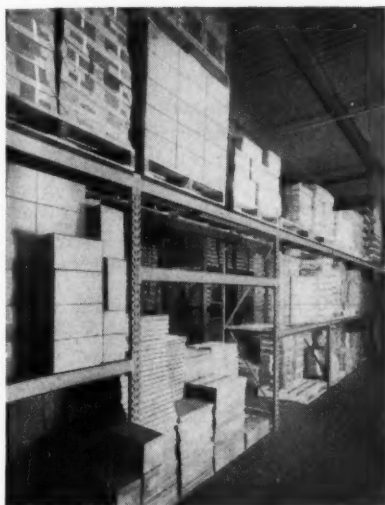
Profusely illustrated 31 page booklet covers line of conveyor systems including roller conveyors, wheel, belt, live roller conveyors, chain, overhead trolley, elevating, sheet metal and roller spirals, portable power conveyors, ball transfers and special conveying machinery. Includes a description of each type of conveyor and photographs of industrial applications. *Mathews Conveyor Co.*

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MULTI-RACK

STORAGE RACK SYSTEMS

A NEW CONCEPT IN STORAGE BY EXPERIENCED STORAGE ENGINEERS

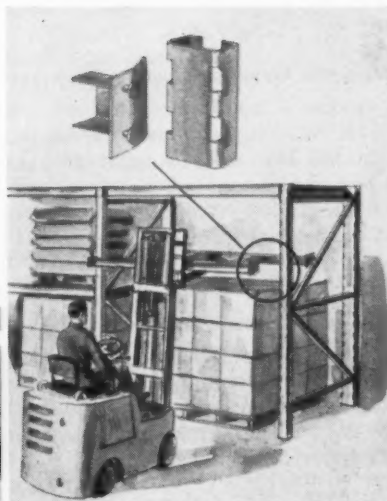


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Patents Applied For



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At last! An adjustable arm rack that answers the long standing need for flexible horizontal storage requirements. Movable arms are attached to vertical columns **without** tools. No bolts or nuts. Arms can be moved in a few seconds as the need arises. Furnished in standard stock sizes or special designs to suit any requirement. Applications are unlimited. May be used for plywood, sheet stock, bar stock, tubing, pipe, furniture, etc.



Adjustable Shelf Racks

Features Exclusive Lead-In With No Rough Hooks Exposed On Uprights

Ideal where large adjustable shelves are required. Shelves can be removed and relocated, loaded or unloaded with a fork lift. Furnished in any size for any load requirement. Available in skeleton type for large package storage or in solid deck construction for mixed package storage. Design of shelf support lugs and lead-in guide plates on ends of each shelf provide extremely easy placement and locating in the rack, whether loaded or unloaded. The face of the upright is smooth with no rough hooks to catch on pallets. All MULTI RACK models feature heavy duty C-Section columns. Shelves are adjustable on 3" centers. Capacities are from 5,000 lbs. to 100,000 lbs. per section.

Pallet And Bulk Storage

Universal Adjustable Pallet Racks

Only 2 parts—
Uprights and Load Support Beams!

Only 2 parts—Uprights and Load Support Beams! Unique Double Lock action assures a rigid rack with instant adjustability **without** tools. Racks can be easily rearranged to suit changing storage requirements. Accessories available to provide storage for dies, skids, drums, etc. Also available for Drive-In and Drive-Thru Racks.

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On All Lines

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Belt Conveyors

This 120 page handbook contains sufficient engineering data necessary for an engineer or layman to design a belt conveyor for average service. Terminal selectional tables provide a complete line of belt conveyors for most applications. A complete line of necessary equipment for building a conveyor is listed. Includes latest designs of belt conveyor equipment and the latest engineering data. *Jeffrey Mfg. Co.*

... FOR YOUR COPY, CIRCLE NO. 210

Conveyor for Bulk Materials

A new concept of belt conveyor design that carries the belt on linked idler assemblies suspended at intervals between two tensioned, stationary, parallel wire ropes is the subject of this bulletin. *Goodman Mfg. Co., Industrial Mfg. Div.*

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Versatile Overhead Trolley Conveyor

Brochure about a newly designed overhead trolley conveyor that offers increased flexibility in materials handling. Explains how the new introduction provides means for transportation, storage, processing and accumulation all on a single, integrated overhead conveyor system. *Rapistan-Keystone, Inc.*

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Conveyor Systems Manual

This 73-page book presents a condensed set of data sheets and illustrations showing applications of some of the various conveyor systems designed and manufactured by this company. Well illustrated with diagrams and photos. *Conveyor Systems, Inc.*

... FOR YOUR COPY, CIRCLE NO. 213

Belt Conveyors for Bulk Materials

Information about a specially designed idler used in this belt conveyor is the opener of this booklet. Includes fundamental data regarding belt conveyors. Charts show weights of materials; capacities of troughing belt conveyors, tons per hour; belt conveyor capacities; determining weight of rubber conveyor belt; horsepower for belt conveyors and an conveyor elevation chart. *J. D. Christian Engineers.*

... FOR YOUR COPY, CIRCLE NO. 214

Lightweight Conveyor Belts

A lightweight Koroseal belt that resists acids and greases is described in this bulletin. Discusses applications for foods handling and industrial uses, construction of tan or white Koroseal belting, advantages, physical properties and belt specifications. *B. F. Goodrich Co.*

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Unitized Conveyors

This 21-page booklet describes pre-engineered standards including such items as roller conveyors of either the gravity push-along or live roller type; inclined belt conveyors, drive units intermediate sections, curved sections, supports, hangers and other items to enable quick and ready on-the-job installation by even the unskilled. *Standard Conveyor Co.*

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Flexible, Portable Conveyor

Bulletin describes a portable conveyor that is also flexible so that it can direct the flow of material around corners, up into truck beds or box cars. Discusses principle of operation of the versatile conveyor, construction features and available optional equipment. *California Conveyor Corp.*

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Conveying Equipment

Brochure covers a line of conveying equipment for handling material in all phases of industry. Pictures and gives brief description of a bottle conveyor, rotary accumulating table, slide bed incline conveyor, a trailer conveyor, narrow belt conveyor and many others. *Island Equipment Corp.*

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Pre-Built Sectional Belt Conveyor

A practical 40-page handbook on the use and selection of standardized pre-built sectional belt conveyors. Explains adaptability to a large proportion of belt conveyor applications and operating conditions. Includes detailed engineering and selection data. Illustrations show installation applications in a variety of industries and typical layouts. *Link-Belt Co.*

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All Purpose Belt Conveyor

Special features and general specifications of an all purpose belt conveyor are contained in this bulletin. Includes drawings of the 22 standard types of under-carriages and supports for use in factories, industrial plants, production lines, mills and warehouses. *New London Engineering Co.*

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Gravity Conveyors

When to use roller or wheel type conveyors is explained in this bulletin. Describes 15 different wheel patterns available, construction features, accessories and includes specifications and capacities of steel and aluminum wheel and roller conveyors in straight and curved sections. *Hytrol Conveyor Co.*

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Light Product Conveying

A versatile, powered conveyor that can be floor or ceiling mounted for light products is the subject of this brochure. Discusses features, construction and applications. *Union Steel Products Co., Industrial Conveyor Div.*

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Conveyors and Conveyor Systems

Booklet about a custom system designed so that standard conveyor units can be easily assembled into an engineered system in the plant. Booklet is designed to help the reader find the right conveyor components to best solve handling problems, present or future. Contains many photos, diagrams and technical data. *Materials Handling Section, Food Machinery & Chemical Corp.*

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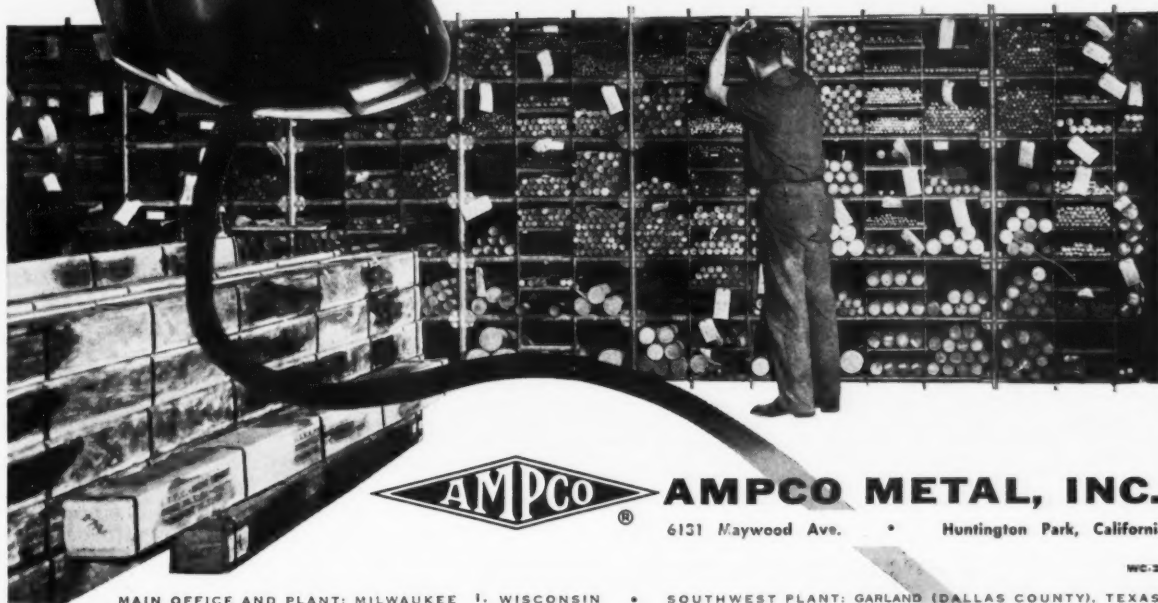
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Manganese Screw Conveyors for Abrasive Materials

Bulletin explains the reasons why a heavy-edge, manganese steel screw conveyor gives high performance for conveying of cement materials, slurries, and clinker; slage, ore, coke, ashes, rough aggregates; crusher outputs and process feeds. Lists eleven recommended practices for handling abrasives by screw conveyors. Includes complete specification data. *J. D. Christian Engineers.*

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Conveying Equipment

This 20-page catalog contains technical data about a line of conveying equipment. Covers roller conveyors, spiral conveyors and spiral chutes, slat conveyors, pusher bar conveyors, chain, belt, vertical reciprocating and suspended tray conveyors. Describes and pictures conveyor applications, also drawings with principal dimensions. *Samuel Olson Mfg. Co., Inc.*

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Mechanical Vibrating Conveyors

This 63-page manual contains complete technical information on four types of mechanical vibrating conveyors. These include a conveyor for heavy duty service and large capacities as in a foundry; a dynamically balanced unit for use on upper floors, and tops of silos; a sectional type of conveyor for medium duty and capacities; and a sectional type for light capacity work. *Jeffrey Mfg. Co.*

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Cranes

Cranes and Transfer Cranes

Engineering and application data on cranes and transfer cranes and gantry cranes are contained in this manual. Includes information on hand-propelled and motor driven gantry cranes. *Cleveland Tramrail Div., Cleveland-Crane & Engineering Co.*

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Cranes and Crane Components

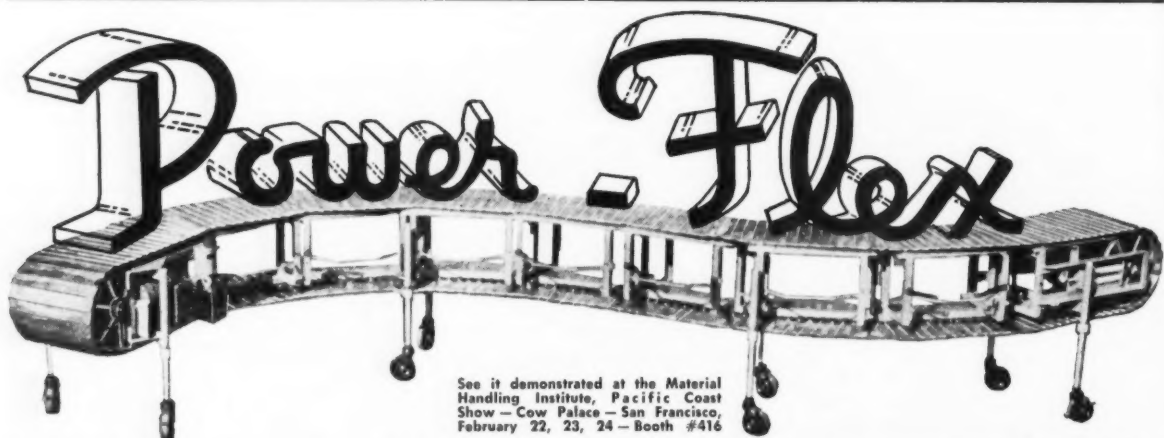
This 64-page manual on building blocks for the crane industry illustrates and describes line of end trucks, enclosed conductors, hoists, crane drives and fluid drive motors, trolleys, runway rails, hanger fittings, and other components for building top riding and underslung cranes from one to 15 ton capacity. *Consolidated Crane & Engineering Corp.*

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Multi-Purpose Mobile Hydraulic Cranes

Bulletin about a complete line of cranes is illustrated with on-the-job pictures of general as well as special applications. Describes and illustrates accessory equipment including electric power packs, extension booms, barrel grips, crane wells, stack or lift attachments and stabilizers. *Ruger Equipment Co.*

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See it demonstrated at the Material Handling Institute, Pacific Coast Show - Cow Palace - San Francisco, February 22, 23, 24 - Booth #416

The POWER-FLEX is the conveyor that teams up flexibility with portability to direct flow of material around corners, up into truck beds, box cars, or wherever material handling problems may exist. The POWER-FLEX is so flexible that "S" curves, "U" curves, "L" curves, or any combination of these curves can be obtained easily while in operation inasmuch as the conveyor is mounted on 5" caster wheels. The conveying principle is performed by interlocking flights attached to a special

calibrated chain. All steel sections, designed for strength, are fabricated in precision built weld jigs to insure conformity. Heights from 20" minimum to 72" maximum can be easily obtained by adjusting the telescoping legs. All power transmission equipment, electric motor, V-belt drive, 20 to 1 worm gear reducer, and roller chain drive are standard American built components. Optional equipment such as variable speed and torque limiting device for protection against overloading are available upon request.

Write or phone California Conveyor Corporation Sales Engineering Department to help solve your material handling problem.

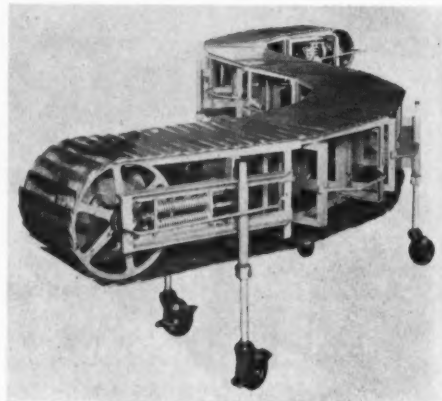
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WESTERN INDUSTRY/FEBRUARY 1961

Overhead Cranes

Factors that control overhead crane selection such as frequency of use and planned obsolescence are discussed in this booklet. Describes trolley construction, bridge construction and electrical equipment features. *Harnischfeger Corp.*

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Stacker Crane

Illustrated case history report of a stacker crane installed in a Western plant for handling various lengths of metal tubing. Explains operation and outstanding features. *Jervis B. Webb Co.*

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Mobile Cranes

A line of electrically powered mobile cranes in capacities from 3,000 to 10,000 lbs. is covered in this bulletin. Includes drawings and specifications of each model. Applications include maintenance jobs, handling long loads, yard work, reaching and positioning. *Elwell-Parker Electric Co.*

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Crane Assemblies

Brochure covers a wide choice of off-the-shelf packaged jib, gantry, or single girder bridge cranes for equipping shop or plant with small crane service. Also describes accessories for use with overhead cranes. *Manning, Maxwell & Moore, Inc.*

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Hydraulic Cranes

Five models of hydraulic cranes are described and pictured in this brochure. Gives pertinent data about each model, features and uses. Models covered have a five, seven, eight and 11-ton range. *Austin-Western Construction Equipment Div., Baldwin-Lima-Hamilton Corp.*

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Hydraulic Controlled Yard and Dock Crane

Features of a newly introduced hydraulic crane with a true six-ton lift and carry capacity are set forth in this bulletin. Discusses advantages of its use in handling heavy materials, includes specifications. *Hanson Machinery Co.*

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Floor Cranes

Bulletin describes eight models of floor cranes with capacities from one-half to three tons. Discusses features and applications. Also covers cranes in one-half, one, and two-ton load capacities for use in a wide range of truck and dock loading and unloading operations. *Uhden, Inc.*

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Hand Traveling Cranes

Bulletin about top running hand traveling cranes with capacities from one to 10 tons and spans up to 50 ft. for industrial applications where accurate spotting of loads is more important than fast travel speeds. *Irving G. King & Co.*

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8912-MR



Ya say
your solids
are separatin'
at the rims...



... and
production's
slow 'cause
the trucks
can't go...



... AND
the boss is
on your back
because of
downtime and high
replacement costs?

Then
you
need **MONARCH SOLIDS**
made by the new
MONOLOK* process!

Premature rim separation... the most universal failure experienced with industrial solid tires... frequently is caused by embedded metal scrap, chemicals or excessive heat. By destroying the rubber-to-metal bond, these factors cause severe tire damage and early failure.

NOW... after years of research... MONARCH has solved this costly problem! By combining a new bonding process with an improved natural rubber stock, MONARCH has developed a solid tire with unprecedented resistance to rim separation. That's why MONARCH tires give you longer trouble-free service and cut replacement costs.

*Monolok is Monarch's trade-name for a new chemical process that creates the most durable rubber-to-metal bond available to date.

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... saves you money
ON EVERY VALVE

Every minute saved is money in your pocket. Cut out the waste of time, labor, floor space due to hard-to-reach valves. At the same time, convert Danger Zones to Safety Zones. Equip every overhead valve in your plant with Babbitt Adjustable Sprocket Rims with Chain Guides for day to day economy.

- They simplify pipe layout.
- They fit any size valve wheel.
- They are easy to install and operate.
- They operate any valve from the floor.
- They save time and money.
- The first cost is the only cost (no maintenance).
- They are packed completely assembled (one to a carton), with easy-to-follow instructions.
- A hot-galvanized rust proof chain is available for all sizes.

Babbitt Adjustable Sprocket Rims with Chain Guide are carried in stock by most mill supply houses. Just phone your mill supply salesman, or contact us direct.

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Crane Components

Crane components from which top running and underhung cranes can be fabricated in spans through 50 ft., and capacities through 10 tons are described in this bulletin. Diagrams four types of end truck assemblies available and includes component specifications. *Robbins & Myers, Inc., Hoist & Crane Div.*

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Heavy Duty Cranes

Booklet opens with a listing of companies and organizations using company's custom-designed and fabricated cranes. Photos show some typical crane installations and drawings depict types of cranes the company makes including overhead bridge, gantry, semi-gantry, gate hoists, lumber grapples and double trolley crane. *Cyclops Iron Works.*

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One Man Portable Cranes

Data about a line of portable floor cranes that can be used by one man as a crane, hoist, shop truck and portable ladder. Applications include transporting heavy parts, lifting awkward loads, unloading trucks, storing and tiering and general shop maintenance work. Specifications. *Material Handling Div., Grand Specialties*

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Hoists

Hoists for Every Lifting Job

Brochure describes and pictures a line of hoisting equipment. Includes a midget electric hoist with a capacity of one-eighth to two tons, a spur geared hand chain winch with a capacity of one-eighth to two tons, a spur geared hand chain winch with a capacity from three-eighths to 1½ tons as well as a geared trolley-type hand chain operated with a capacity to 40 tons. *Yale Materials Handling Div., Yale & Towne Mfg. Co.*

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Noiseless, Worm-Drive Electric Hoists

The advantages of a worm-driven hoist are outlined in this brochure along with a list of wide industrial applications. Includes features, standard ratings and dimensions of various types of monorail hoists, hatchway hoists, rope guide hoists and two-speed ac hoists. *Electro Lift, Inc.*

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Hand and Electric Chain Hoists

An extensive line of hoists including a puller for ¾ to 6 tons capacity, a high speed hoist of aluminum alloy for ¼ to 10 tons capacity, a high speed spur geared hoist for 12 to 40 tons capacity and a differential hoist are among those covered in this bulletin. Includes specifications. *Chisholm-Moore Hoist Div., Columbus McKinnon Corp.*

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Electric Hoists

A heavy-lift hoist for 2,000 to 50,000 lb. load and a hoist for 250 to 2,000 lb. jobs are described in this bulletin. Discusses new balanced design feature and outlines numerous other features of the totally enclosed, weatherproof and dustproof units. Includes specifications. *Harnischfeger Corp.*

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Hand Hoists

Booklet describes line of 17 hand hoists with capacities from one-half to 50 tons. Discusses features including multiple reeving. Charts specifications, clearance data and dimensions. *Irving G. King & Co.*

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Overload Cutoff for Electric Hoists

Data about an overload cutoff unit designed and built to fit any Wright Speedway electric hoist, giving practical and fast-acting overload protection to material handling operations. *Wright Hoist Div., American Chain & Cable Co., Inc.*

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Mine Hoists

Bulletin about hoists for large and small mines powered by electric motors, gasoline or diesel engines. Charts technical information and includes formulas for finding horsepower, rope pull and rope speed for hoists. *Denver Equipment Co.*

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Portable, Hoist and Pulling Machine

A lightweight and portable, manually-operated hoisting and pulling machine that is conservatively rated at 3,300 lbs. is the subject of this brochure. Outlines features, uses and specifications. *Griphoist, Inc.*

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Spur Geared Hoist Line

Literature covers features of a lightweight all steel line of spur geared hoists. Also describes army type hoist which has swivel trucks and adapts well to monorail systems with close radius curves and tight switches. *Chester Hoist Div., National Screw & Mfg. Co.*

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Electric Hoists

Roller chain type electric hoists for capacities from one-eighth through two tons are described in this brochure. Discusses features and charts specifications of a pull cord type control hoist and a new push button type control hoist. *Manning, Maxwell & Moore, Inc.*

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Low Headroom Hoists

Hoists that incorporate low headroom as a standard feature are the subject of this booklet. Describes most frequently used models, manual and motor driven trolleys and charts specification data. *Robbins & Myers, Inc., Hoist & Crane Div.*

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Only GF offers shelving "interchangeability"

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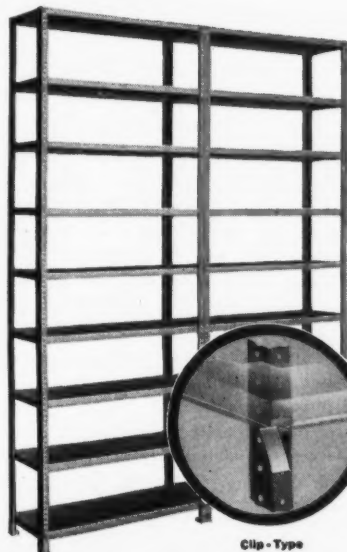
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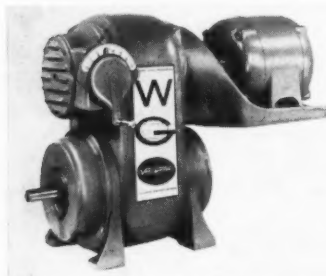
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USE RIP OUT POSTCARD, PAGE 52, FOR MORE INFORMATION ON PRODUCTS DESCRIBED

SPEED DRIVES

... variable speed units designed to users' needs



A complete new line of mechanical variable speed drives is announced. Called Vari-Master, it is the first mechanical variable speed drive designed to customer requirements. Vari-master is available in three sizes, covering the horsepower

range of from 1 to 10 hp with a wide speed range of up to 8 to 1 ratio of speed variation. It is offered in both drip proof and totally enclosed construction. The line embodies a number of engineering features; such as using a fan on the variable speed shaft to allow maximum cooling of the belt and longer belt life, positive positioning discs by shaft shoulders eliminating possibility of belt misalignment. *Western Gear Corp.*

... FOR MORE DETAILS, CIRCLE NO. 300

OUTDOOR STORAGE

... new cover of plastic laminated burlap

Development of a new plastic-laminated burlap outdoor storage cover, called Burlene, available in a wide range of sizes and constructions, has been announced. The new cover has been successfully tested and used for outdoor storage of heavy machinery, firebrick, lumber, etc. Benefits of the new construction include water resistance, tear and puncture resistance and multiple-use achieved through the special burlap and polyethylene lamination process. A pre-formed construction prevents dirt and dust contamination of the item covered. In addition, the Burlene cover will not develop leaks due to flexing or normal abrasion. Since there is no stitching, as seams and hems are rubberized and heat-fused, there are no needle holes for water to penetrate the material. The inner burlap ply prevents sharp corners or other protrusions from damaging the outer polyethylene film moisture barrier. Available in flat form or in a pre-formed construction, the new cover will withstand extremely high or low temperatures achieved through the lamination process. At sub-zero temperatures, the cover remains flexible and can be folded for storage or easy handling. Although water resistant, the plasticized construction permits escape of condensation, which can cause rusting, discoloration and rot. *Bemis Bros. Bag Co.*

... FOR MORE DETAILS, CIRCLE NO. 301

VENTILATING SYSTEM

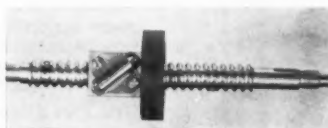
... dual purpose for summer and winter

A new dual purpose industrial ventilator is now produced. This product employs a unique engineering principle that combines both the recirculation of heated air in winter and exhaust of hot air in summer into a single compact unit. The manufacturer reports cases in which the use of this model has reduced heating costs up to 45% and maintained a more uniform, controlled temperature all year around. It is easy to install and simple to operate. During the winter, a damper seals the top of the unit against winter heat loss. A 3-position reversing switch controls the direction of the fan. On the recirculating cycle, the fan blows the air downward. Wasted heat trapped under the roof line is pulled into the fan and blown out the diffuser openings at the bottom, carrying it back to the floor area. This movement of air keeps temperature more uniform at all levels and improves efficiency of the heating system. On the exhaust cycle, during the summer, the fan blows the air upward, pulling hot air into its path and exhausting it outside the building. The damper, which remains closed during the winter, is lifted up by the air column and seated against the underside of the weather dome. Its conical shape directs the air movement so that it is easily and quickly exhausted without back pressure. *Genie-Air Products*

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BALL BEARING SCREW

... is free wheeling at both ends of travel



A new line of ball bearing screws permits limiting the travel of the nut at predetermined positions with continuing rotation of the screw. This freewheeling action is accomplished by providing a stop in the screw at each end of the desired nut travel, and a simple freewheeling device, which is an integral part of the nut assembly. There is no need for limit switches or other costly devices to limit travel and prevent jamming or stalling. With the exception of the stops and freewheeling device, the units are the same as conventional ball bearing screws and nuts. Also, the high load-carrying capacities of the units are the same as conventional screws of the same size. Mechanical efficiencies range from 90 to 95 per cent. *Saginaw Steering Gear Div., General Motors Corp.*

... FOR MORE DETAILS, CIRCLE NO. 303

Industrial Efficiency Report

...now...at lower cost per ton-mile,
SOULÉ STEEL speeds customer deliveries
with the WHITE 2000!!!



Jack Dressen, Soulé Steel's Los Angeles plant manager, watches one of the firm's 18 Whites being loaded with structural steel. (lower left) Hauling aluminum windows is another job for Soulé's White 2000s.



Versatility best describes Soulé Steels use of their White 2000s throughout Southern California. Yet, whether they haul steel forms, metal lath products, aluminum curtain and window wall, expanded metal or the 1001 other steel and aluminum products, one factor remains constant—Soulé's White 2000s operate with *lower cost per ton-mile* and hold down transportation costs.

White offers a complete line of custom-engineered trucks, built to exact specifications to serve every industrial requirement with maximum efficiency. Call your local White representative now for the facts on *your* particular need.

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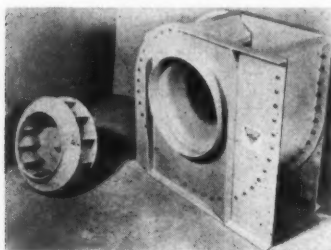
WESTERN INDUSTRY/FEBRUARY 1961


WHITE

... for more details, circle No. 33 on Reader Service Postcard

FANS AND HOUSINGS

... of reinforced plastic for long life



A new line of Duracor reinforced plastic centrifugal blower housings with Duracor-covered standard fan wheels is announced. Offering extreme chemical resistance plus high strength / weight ratios,

the new units can be installed as separate components in existing systems or integrally designed into entire exhaust systems. Both Duracor housing and ducts are corrosion-proof throughout to provide maximum resistance to attack from practically any acid, alkali or fume. *Ceilcote Co.*

... FOR MORE DETAILS, CIRCLE NO. 304

INDUSTRIAL BRIDGES

... can be moved with a fork truck

A new line of standard industrial bridges for spanning depressed rail spurs and other divided areas in plants and warehouses has been developed. Constructed of magnesium for strength and portability, the movable units are of a compact design which permits easy positioning and removal with a fork truck. A full range of models is now available in standard sizes from ten to twenty-four feet in length. Load capacities range up to 16,000 lbs. Other features include tire-saver safety curbs, flared curb ends for wide angle turns, and beveled edges for smooth, bump-free access. *Magline Inc.*

... FOR MORE DETAILS, CIRCLE NO. 305

FINISHING MACHINE

... compact production unit for small parts



A compact, self-contained vibratory finishing machine with work container capacity of 1½ cu. ft. has been introduced. Designed as a production unit for finishing small parts, the 1½ YA is suitable for a variety of applications on metal, plastic and ceramic items.

The 1½ YA has a conveniently located mechanical motion control for infinite variation of frequency over the available range while the machine is running. The rubber-lined work container holds up to 500 lb. of media and work pieces and is supported by a system of air cushions. Amplitude as well as frequency is variable. The machine may be operated in buildings where structural limitations prohibit the use of conventional spring-mounted machines. When placed on air-cushioned floor mounts no vibration is transmitted to the floor. *Pangborn Corp.*

... FOR MORE DETAILS, CIRCLE NO. 306

ELECTRIC MOTORS

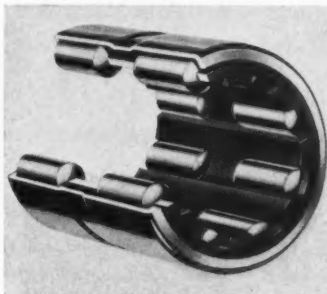
... new line is of submersible a-c type

A completely new line of submersible a-c. motors has been introduced. The new pressure-proof motors, especially designed for close-coupling to centrifugal pumps operating in any depth of water, oil or liquid chemicals, are now available in sizes from ½ through 40 horsepower for operation from polyphase power sources, and from ¾ through 5 horsepower for single-phase connection. The motors are rated at 55° C. temperature rise for 30-minute duty in 40° C. air, and for continuous duty in 40° C. liquids. The heavy one-piece, ribbed housing of the new motors is leak-proof. Both the cast-iron motor frame and mounting base are impervious to corrosion. Of exclusive "Liqui-Seal" construction, the submersible motors are oil-filled to give total protection against bearing wear. They never need additional lubrication. The leak-proof construction seals in the motor oil as it seals out foreign contaminants. Heart of the construction is a specially designed neoprene diaphragm with a built-in O-ring, which completely encircles the motor base to disperse pressure differences over a large area. If internal and external pressures differ, due to heat or depth of immersion, the diaphragm flexes slightly to neutralize the pressure, thereby relieving pressure build-up around the O-ring and the positive shaft seal. *Reliance Electric & Engineering Co.*

... FOR MORE DETAILS, CIRCLE NO. 307

CASTER BEARING

... has greater rollability



A new precision caster bearing, now being used in all Rapistan casters and wheels with two-inch tread, is said to bring greater rollability under varying conditions of load and speed. A retainer-type bearing, the new unit has a

drawn cup construction for its case hardened outer race. Double paths of rollers are retained in non-metallic cages and are lubricated by a lithium-based (non-oxidizing) grease. A cage-type retainer holds the rollers in proper position at all times, eliminating skewing of the rollers and subsequent freezing or lock-up of the casters or wheels under shock loads that can cause axle misalignment or deflection. The coefficient of friction of the new bearing is almost identical to that of the ball bearing. It thus approaches the anti-friction advantage of a ball bearing while providing greater load capacity in less radial space. Because of this it is anticipated that life of the new unit will average three to four times that experienced with the previous bearing. Among applications expected to benefit materially from this new construction are those involving heavy loads moved manually and drag line installations, where speeds many times are higher and are always more sustained than in other caster and wheel applications. *Rapids-Standard Co.*

... FOR MORE DETAILS, CIRCLE NO. 308

DRUM HANDLING

... portable elevator simplifies operation

A new simplicity in the handling of drums and barrels is provided by a new light weight portable elevator. Models are available in capacities from 500 to 2,500 lbs., and special requirements can be met in capacities to 5,000 lbs. The elevator, with standard forks and optional interchangeable platform plate, barrel grab and dumping device, gives the needed flexibility for handling drums in horizontal or vertical positions. The drum may be cradled in or placed across the forks for placing or rolling on the loading rack. To dump, the drum is clamped in the dumper, raised and hand-wheel rotated to the desired angle at any height up to 48 inches. The mechanical grab, available in two types, clips the barrel when pushed against it and will tier drums two high with minimum effort. *Resolvator Co.*

... FOR MORE DETAILS, CIRCLE NO. 309

PUMPS

... non-clog submersible type for handling industrial material



New non-clog submersible pumps are especially designed to handle large solids and stringy materials, such as industrial material, wastes, light sludge and slurries. These compact all-in-one pump and motor units are equipped with a one-piece cast iron im-

peller either in two-blade design or, where excessive clogging would otherwise be encountered, in a bladeless impeller design. Pumps come in 2-, 3- and 4-inch sizes. The totally enclosed non-ventilated induction motor, available in a range of from 3/4 hp to 7 1/2 hp, has an oil-filled interior and finned exterior for rapid cooling in underwater operation. The one-piece motor and pump shaft is #316 stainless steel for maximum resistance to corrosion. *Fairbanks, Morse & Co.*

... FOR MORE DETAILS, CIRCLE NO. 310

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NO AMPLIFIERS
NO WEARING PARTS**

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AIR GASES LIQUIDS

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Integral shut-off valve provides fast connection on production set-ups . . . one hand operation permits fast, easy connecting or disconnecting. **360° swivel action** reduces operator fatigue and eliminates aggravating hose kinking and twisting.

The **Series D interchangeable** coupling can be used on air, gases, or liquid lines which makes it ideal for most industrial uses. Maximum flow with minimum pressure drop. The performance and construction of the Series D Coupling meets Military Specifications MIL-C-4109-A.

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Safe . . . sure . . . swift . . . ElectroLift worm-drive hoists have a place in every manufacturing plant, large or small. Ranging from 1/4 to 10 tons in capacity, these units feature:

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SOLDERING MACHINE

... automated soldering for variety of parts



Semi-automated or completely automated soldering is possible on many components produced in and for the electronics industry with a new universal soldering machine, SD-4 Model 1. This machine is constructed and designed so that adapters can be varied or changed to accommodate a variety of units to be soldered using "Solderforms" to complete the automation. Shown in the illustration is the initial soldering operation of a hermetically sealed condenser. The tube and feed thru (compression seal) are positioned on the adapter. A flux filled washer is placed on top of the feed thru. The assembly then passes through the heating chamber for a given pre-established period of time and comes out completely soldered. There is a cooling period and the soldered unit is then automatically ejected into a container of "rosin residue remover," Formula #AP-20 for flux removal. This component is now ready for the second operation. The heating element used is hooked up to a unit for temperature control and variation. Speed of the turn table is also adjustable over a wide range to correspond to the number of operators used and/or the synchronization of automatic feeders. *Kester Solder Co.*

... FOR MORE DETAILS, CIRCLE NO. 311

GUARD RAIL

... developed for industrial plant use

A new light-gauge guardrail for parking lots, inside-plant protection and similar low-impact applications has been announced. Known as Econo-Beam, this deep-beam guardrail is made of low-cost 16-gauge steel, compared to 12-gauge beams of standard highway guardrails. Econo-Beam is galvanized on both sides and does not need painting for weather protection. It is supplied in 12½- or 25-ft. lengths, and instead of the usual eight splice-bolts of highway guardrails, has only four. A single bolt holds the light-weight sections to any timber, concrete or steel post. *Armco Drainage & Metal Products, Inc.*

... FOR MORE DETAILS, CIRCLE NO. 312

AIR POLLUTION INSTRUMENT

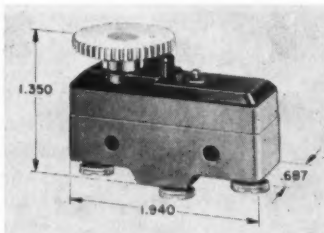
... analyzes airborne particle sizes

New model PC200A particle counter offers a self-contained instrument equally useful for research work as for monitoring the presence and distribution of particulate matter in the atmospheres of such areas as clean rooms for precision manufacture and assembly. Built in standard 19-in. modular panels integrated into a 31-in. high cabinet, the unit presents immediate displays of the numbers of particles present in 15 sub-ranges of sizes from 0.32 microns to 8.0 microns in diameter. Counts appear visually on decade counters, but can be recorded on digital tape or a strip-chart recorder, or both. Automatic programming is included in the instrument to permit 0.3, 1, 3, or 10 minutes of monitoring on any selection or all of the sub-ranges in sequence. *Royco Instruments Inc.*

... FOR MORE DETAILS, CIRCLE NO. 313

ADJUSTABLE SWITCH

... permits differential travel from .0025 to .007 inch



Adjustable differential travel is a feature of a new basic switch. A knurled wheel on top of the switch permits differential travel adjustment from .0025 to .007 inch. Changing the differential

travel changes the contact break distance, the pretravel distance and the operating and differential forces. Operating force varies from 12 to 32 ounces and differential force from 2 to 15 ounces. The release force, however, remains at 10 ounces, regardless of the differential setting. This switch (designated 10BS210) is suited for controlling such precision devices as pressure controls or blower fans. The adjustment wheel permits extremely sensitive control of on-off cycles. It is rated at 20 amperes at 120, 250 or 460 volts AC; ¾ horsepower at 115 volts AC; 1½ horsepower at 230 volts AC. *Minneapolis-Honeywell Regulator Co.*

... FOR MORE DETAILS, CIRCLE NO. 314

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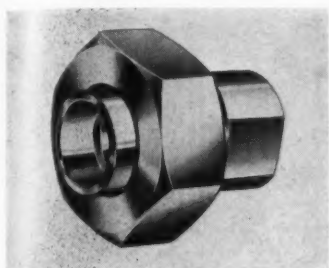
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WESTERN INDUSTRY/FEBRUARY 1961

TUBE FITTING

... for small diameter sizes



A new type of tube and pipe fitting for small diameter sizes from 1/8" to 1" tube O. D. has been developed. Designed to withstand extreme low or high temperatures and high pressures or vacuum where leak-

proof sealing is a requirement, the all-metal fitting assures sealing without leakage on applications with temperatures ranging from -450°F. to +1500°F. and pressures up to 16,000 psig. It is particularly suited for joining critical pneumatic, hydraulic or fuel lines, cooling and heat transfer lines and pressure or vacuum lines, and can also be used as a transition joint to connect dissimilar metals. Normally all components are stainless steel to prevent corrosion. *Aeroquip Corp.*

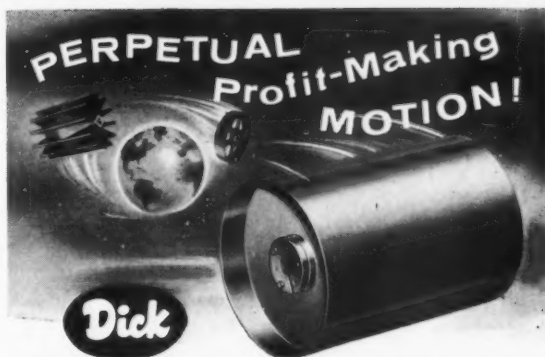
... FOR MORE DETAILS, CIRCLE NO. 315

PLASTIC PANEL

... with long lasting qualities

A fiberglass-reinforced plastic panel, guaranteed for 20 years to retain uniform surface condition with no blooming of fibers, erosion or surface failure, has been developed. It is also shatterproof, and the formula will protect the color and light transmission characteristics of the panel. The new panel is known as Stylux 20. The factory-registered guarantee is made because of a newly-developed formulation that is said to resist deteriorating effects of sunlight and water, major causes of checking, fading and clouding. The new material is particularly suited to industrial and commercial buildings. It provides up to 90% light transmission, as well as excellent heat reflecting and light diffusing qualities. Available in a wide assortment of colors, it is well suited for use as translucent sidewalls, partitions, awnings, sunshades. *Butler Mfg. Co.*

... FOR MORE DETAILS, CIRCLE NO. 316



BARRY "QD" CONVEYOR PULLEYS

All industry is writing the case history of Dick's Barry Conveyor Pulleys. They are in use practically everywhere . . . in production line conveyor systems, package, portable and general conveyor systems . . . standing up under the heaviest work, ore conveying, coal, rock and gravel conveying: wear-reducing, light-weight pulleys of great strength and durability that operate year after year with trouble-free efficiency . . . the nearest thing to perpetual profit-making motion you could buy.

Crowned-face and straight-face also, winged type. Off-the-shelf delivery in sizes and with special characteristics to meet virtually all requirements. Write for illustrated catalog.

DICK "QD" HUB for easy attachment and removal, reduced inventories, a firm, wobble-free grip on the shaft every time.

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JUST WHAT THE DOCTORS ORDERED! This modern kitchen at Mt. Sinai Hospital, Los Angeles, features cabinets, sinks and counters styled in steel. Units like these in USS Stainless Steel, from Emil Brown Co., Los Angeles, are ideal for sanitation, corrosion-resistance and ease of cleaning. For more information on stainless steel—or *any* steel, call your USS representative now.

TWO-HUNDRED TON "BIRD" CAGE! Missile men call rockets "birds" and these giant cages, each thirteen stories high, require hundreds of tons of husky, dependable USS Structural Steel. These mighty towers, vital for pre-blastoff servicing, were custom-fabricated in sections by Vinnell Steel, Irwindale, California before delivery to their west coast Air Force launching site.



This mark tells you a product is made of modern, dependable steel. Look for it on the products you buy.



**STEEL FOR EVERY PURPOSE
FROM A SINGLE SOURCE**

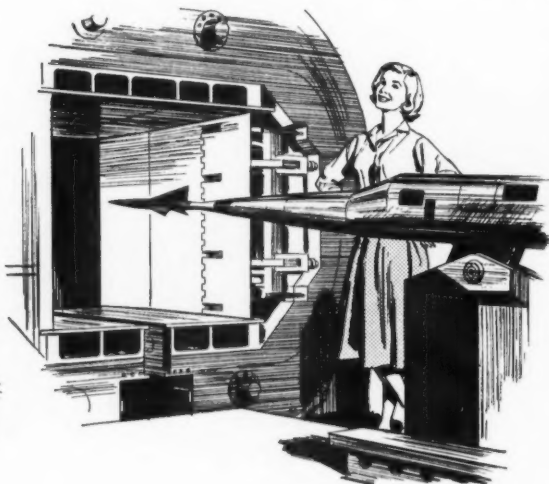
Write Consumer Service, 120 Montgomery St., San Francisco 6



TRAVELING WALLS OF STEEL shield atomic workers probing the effects of radiation at the National Reactor Testing Station, Arco, Idaho. USS Steel Plate, six inches thick, was fabricated into intricate sliding panels by Paul Roberts Machine Shop, Pocatello, Idaho. Through the solid steel panels, mechanical hands can be maneuvered as they test materials inside the station's "hot cells."

SUPERSONIC FLIGHTS IN MINIATURE take off at five times the speed of sound in the wind tunnel at Convair Division, General Dynamics Corp., San Diego, California. The strong heart of this tunnel was formed of USS "T-1" Steel to withstand roaring winds and pressures far beyond the sound and thermal barriers. Steel by USS, fabrication by Chicago Bridge and Iron Company, Salt Lake City, Utah.

USS AND "T-1" ARE REGISTERED TRADEMARKS



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WESTERN INDUSTRY NEWS

THE INDUSTRIAL WEST . . . ON ITS WAY

PLANTS • PRODUCTION • DISTRIBUTION • PERSONNEL

Mathews Conveyor West Building at Chico, Calif.

SAN CARLOS—*Persons W. Brown*, president of Mathews Conveyor Co. West Coast, here, announced recently that the company will start building an \$800,000 plant in Chico, Calif. this month for manufacturing and assembly of its conveyor equipment.

The company, a subsidiary of Mathews Conveyor Co. of Ellwood City, Pa., manufactures gravity and power conveyers and special conveying machinery. Brown said the move was necessary as the company has outgrown its present 35,000 sq. ft. manufacturing facility at San Carlos. The new plant, to employ about 75 workers, will be located on a 40-acre site and will consist of 78,000 sq. ft. of manufacturing space.

The Butte County location was selected, Brown pointed out, because it is away from metropolitan congestion yet close to the company's markets.

Sales, administration and engineering offices will remain in the Bay Area although not in the present facility, Brown said.

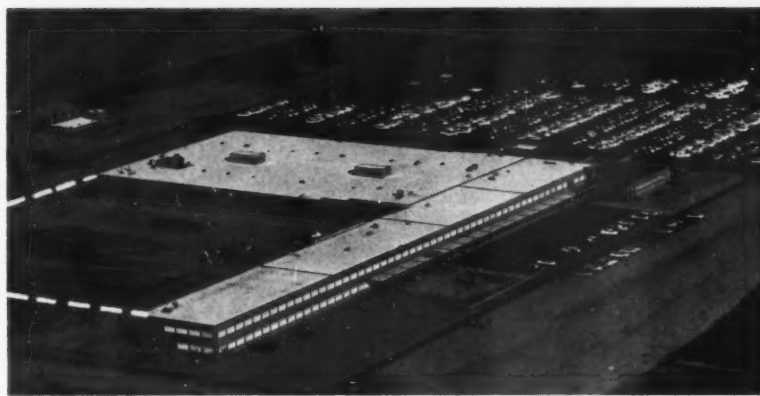
Metal & Thermit Corp. Plans Portland Plant

PORTLAND—*B. W. Weber*, vice president of Metal & Thermit Corp., has announced plans to establish a \$1,000,000 detinning and industrial chemicals plant here.

The company official said that a Portland site has been selected, and it is planned to have the plant in operation this year. The plant will involve chemical process facilities for reducing tin plate scrap to tin and high grade steel scrap.

Metal & Thermit Corp., with headquarters at New York City, is also a supplier of coatings, electroplating chemicals, welding equipment and electrodes.

GE To Expand Phoenix Computer Facility



A \$4,000,000 expansion at General Electric Co.'s Computer Department, Phoenix, will add some 190,000 sq. ft. of manufacturing and administrative space to existing facilities. The present L-shaped building will be squared-off when construction is completed in December, 1961.

PHOENIX—*Clair C. Lasher*, general manager of General Electric Co.'s Computer Department here, has announced that bids on a \$4,000,000 addition to its manufacturing and headquarters facility will be called in March with construction to begin in April.

Currently employing some 2,300

personnel, employment is expected to grow to more than 2,800 by the end of this year, according to Lasher.

The Department is now manufacturing data-processing equipment in the present building, and industrial process control computers in a 50,000 sq. ft. rented facility about two miles from the main building.

Willamette Plywood to Build Plant at Yreka

YREKA, CALIF. — *M. Hopkins*, vice president of the Willamette Plywood Corp., Portland, has announced plans to build a \$2,000,000 plywood plant in the area between Hornbrook and Galle in Siskiyou County, Calif.

The company plans a facility with a capacity of 4,000,000 ft. of three-eighths-inch plywood. The plant will handle the veneer output of Willamette's Happy Camp plant and will employ about 200 men.

To occupy at least 15 acres, Hopkins estimated that it will take about eight months to survey and construct the facility.

Edison Begins \$131 Million Expansion-Improvement Plan

LOS ANGELES — Southern California Edison announces a \$131 million budget this year that will go to additions and improvements to its electric system that services 10 counties.

Edison spokesmen look to a 10 million kw consumption annually by 1985. More than a million kw is either under construction now or is authorized. Project includes the first computer-automated generating stations that will rise at the Huntington Beach steam station.

The Alamitos steam station will be almost tripled in capacity and nine new substations will be built this year.

Snap-on **MIDGET** **TOOLS**

speed assembly of tiny components



159-TM-B Complete Midget Utility Set
1/4-in. square drive — 59 tools in strong metal box

This SNAP-ON 1/4-in. square drive set gives you a practical assortment of tools for small, intricate product assembly or maintenance work — electronic components, appliances, communication equipment, etc.

The 59-tool set includes deep hexagon and standard hexagon sockets ranging from 1/8 in. to 1/2 in.; square sockets; regular tip, Phillips, clutch-type and hex head screwdrivers; plus ratchets and a wide assortment of other handles and adaptors.

The fine quality and precision machining common to all SNAP-ON tools is particularly important in these tiny units. Socket openings, for example, are machined to extremely close tolerances to fit snugly and surely over tiny nuts and bolts without slipping. Driver bits likewise are machined to close tolerances and fit well into screw recesses to avoid gouging of screw heads.

The result is faster work output, far less rejects because of bolt or screw damage. And, because tough SNAP-ON tools last longer, they cost less in the long run.

SETS ASSEMBLED TO ORDER

The above set can be modified to meet your exact needs, or sets of specially selected Midget socket wrenches and other small tools can be developed to fit your exact requirements. Available, too, are Midget industrial sockets in black finish for use on power nut runners. Your SNAP-ON representative will be happy to give you full details. He offers a complete range of hand and bench tools for all industrial needs. Call your nearest branch or write us for new industrial catalog.

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- BUTTE (2-8762)

... for more details, circle No. 41 on Reader Service Postcard

Hercules Powder Co. **Expansion Underway**

HERCULES, CALIF. — The Hercules Powder Co. has announced the beginning of operations of a multimillion dollar expansion program here. The expansion includes new manufacturing facilities for the production of methanol, formaldehyde, urea-formaldehyde concentrates, and slow nitrogen release urea-form for fertilizer applications.

The newly completed program provides facilities for the production of 8,000,000 gallons of methanol per year, 50,000,000 pounds of formaldehyde, and 11,000 tons of urea-formaldehyde compositions.

The methanol plant is the first on the West Coast. A major use for methanol is in the manufacture of formaldehyde; it is also used in the manufacture of other chemicals, plastics, coatings, drugs, solvents, and antifreeze.

Largest West Coast outlet for formaldehyde is for the manufacture of resins for particle board and plywood adhesives. Similar resins are also used as finishing agents for textiles, wet-strength agents for paper, in plastics, and lumber treatment.

GE San Jose to Install **Super Clean Work Areas**

SAN JOSE, CALIF. — Construction will start soon on a 2,800 sq. ft. "super clean" production area at General Electric's Atomic Power Equipment Department here for the manufacture of neutron detection devices. The announcement was made last month by department general manager *George White* who said the instruments are used for sensitive measurements within a nuclear reactor core.

Special air conditioning planned for the new assembly and testing area will make its atmosphere virtually dust-free. Exacting temperature and humidity controls will also help maintain proper conditions in the "super clean" location.

Responsibility for the manufacture and marketing of the special kind of instruments has been transferred here from the Company's Instrument Department facility, West Lynn, Mass., because they are part of standard nuclear reactor equipment and more in line with GE's group of atomic products here.

Western Asbestos Co. To Build at Crocker Park

SAN FRANCISCO—The offices and warehousing facilities of the Western Asbestos Co., now in four separate locations here, will be consolidated and expanded in a new building to be designed and constructed this year by the Crocker Land Co. in Crocker Industrial Park just south of the San Francisco city limits.

The company's new home and general office, which will be leased from the Crocker Land Co., will comprise 100,000 sq. ft. of floor area with sufficient additional land to allow for future growth.

Western Asbestos is engaged in industrial heat insulation, acoustical treatment, and as contractors in several specialized fields. The company also distributes building materials and industrial products, representing Johns-Mansville, Celotex and Formica.

Jorgensen Opens Steel Service in Honolulu

HONOLULU—The Earle M. Jorgensen Co. officially dedicated their new steel and aluminum distribution warehouse here last month at 2655 Waiwai Loop.

The new plant and office cover 55,000 sq. ft., with ample space for an inventory of 6,000 or more items. Materials stocked includes carbon, alloy stainless and tool steels; aluminum in bars, sheets, plates, strips, structural shapes and tubing.

Frank Gregory, Hawaii manager, explained that materials such as steel must be purchased in large amounts, but firms can get small supplies as needed from steel service centers. The Center can also cut the metal to size and furnish all necessary engineering data.

Earle Jorgensen, president of the company which has service centers throughout the West, was present for the dedication.

Mine and Smelter Supply Named Corning Glass Rep

DENVER—The Mine and Smelter Supply Co., 3800 Race St., here, has been named a franchised distributor for glass piping, heat exchangers, and industrial heaters manufactured by Corning Glass Works.

New PAYLOADER®

6,000-LB. CAPACITY
4-WHEEL DRIVE



FORK LIFT TRACTOR

Features that Give Reliable Work-ability Indoors and Outdoors...on Paved and Unpaved Surfaces:

Big Capacity — 6,000-lbs. at 24" load center and 14' maximum stacking height. Lifts to 21½' at reduced capacity. Both 60" and 48" fork tines adjust to 48" width.

Easy Operation — Complete hydraulic control of mast and forks with a 3-spool valve in a closed, pressure-controlled system. Lift mechanism combines hydraulic ram and heavy-duty roller chains. Power-shift, power-steering and 4-wheel hydraulic brakes add to operating ease.

Power and Speed — 6-cyl. 77½-hp. gasoline or 71½-hp. diesel engine. Full-reversing power-shift transmission provides 3 forward speeds up to 21.3 mph., and 3 reverse speeds up to 25.7 mph.

Traction and Stability — Long wheelbase and wide tread, 4-wheel drive, full power-shift transmission with matching torque converter, torque proportioning differentials and planetary final drives. 12.00 x 24 tubeless tires front and back.

Safety and Accessibility — Hydraulic brakes on all 4 wheels. Slope-down front end gives operator ground level visibility. Separate oil-to-air radiator assures positive cooling of transmission and torque converter oil. Fuel tank and transmission can be checked from ground. Battery, engine and other checking points are within easy reach. Safety ladder and hand rails provide convenient access.

Convertibility — Easily changes into versatile tractor-shovel of 3,000-lb. operating capacity with ¾ to 2-cu. yd. (SAE rated) bucket capacity or patented "4-in-1" bucket.

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Harvey, Bridgeport Named for New Army Weapon



Shown during demonstration of new anti-tank weapon, the XM72 rocket grenade, are from left, Col. Paul H. Scordas, commander, Los Angeles Ordnance district, and Lt. Gen. John H. Hinrichs, Army Chief of Ordnance. Firing case sits on table at left and projectile stands among microphones. Harvey Aluminum and Bridgeport Brass have been named Southland subs on the contract.

LOS ANGELES—Harvey Aluminum and Hunter Douglas Div., Bridgeport Brass were among Southern California subs named to implement a U. S. Army Ordnance contract calling for 30,000 new anti-tank rocket weapon systems. Announcement was made at a Los Angeles press conference by Lt. Gen. John H. Hinrichs, Army Chief of Ordnance and Col. Paul H. Scordas, commander of the Los Angeles Ordnance district.

Dubbed the XM72 rocket grenade,

it is small, light and readily adaptable to mass production. Made primarily of aluminum extrusions and fibre glass-type parts the entire weapon including projectile weighs 4.5 pounds and is completely disposable.

The carrying case is 25-in. long and 3-in. in diameter and consists of a telescoping aluminum inner section that extends before firing. It was developed through joint efforts of industry and the Army, Gen. Hinrichs said.

Arthur G. McKee Buys Western Machinery Co.

SAN FRANCISCO—Arthur G. McKee & Co., international engineering and construction firm for the steel, petroleum and chemical industries, has acquired the Western Machinery Co., here. The announcement follows a report made in August by H. E. Widdell, president of McKee and Jack H. How, president of Western Machinery, that a preliminary agreement for the acquisition had been reached.

The purchase price for the Western Machinery stock was \$8,440,000 of which approximately \$4,100,000 was paid by McKee in cash and the remainder was paid through the issuance of Western Machinery notes.

Western Machinery comprises three divisions: The Western Knapp Engineering Div., the WEMCO Div., and the Distribution Group. Annual net profits of Western Machinery for the six year period 1954 through 1959 have averaged approximately \$760,000.

Dust Catcher Installed At Gray's Harbor Mill

HOQUIAM, WASH. — Rayonier, Inc. has announced installation of a huge electrostatic dust catcher as part of its expansion program at its Gray's Harbor mill here.

The dust catcher is an electrostatic precipitator, designed and built by the Metal Products Division of Koppers Co., Inc. Attached to the base of the stack leading from the boiler of the new sodium base liquor recovery system, the precipitator traps fine particles of sodium sulfite, which otherwise would be blown out the stack and over the surrounding area. When the plant is in full operation, the precipitator is expected to trap approximately 55 tons of the material in a 24-hour day.

The new recovery system at Rayonier's Gray's Harbor Division is a part of the company's current \$30,000,000 expansion program. Cost of the dust catcher is approximately \$225,000.

Controls Co. Division Moves to California

EL SEGUNDO, CALIF. — The Control Switch Div. of Controls Co. of America moved its headquarters' operation last month from Folcroft, Pa., to El Segundo, according to *Harold F. Ames*, vice president and general manager of the division. The move places the general management of the division in the hub of the West Coast market, the largest and fastest growing area for the company's military, aircraft, missile and electronic sales.

Ames also announced that Controls Company of America had recently purchased 83,000 sq. ft. of land at El Segundo adjacent to the present buildings for future expansion of its Control Switch Division. The present buildings comprise an area of 26,400 sq. ft. of manufacturing and office space.

The Control Switch Division makes precision switches, switchlights, indicator lights, snap-action switches, lighted panel switches, electro-luminescent instrumentation panels and Astromatic systems.

Controls Company of America, with executive headquarters in Schiller Park, Ill., operates 23 plants in the United States, Canada, Europe and South America.

Southwest Potash Awards Contract for Expansion

PASADENA, CALIF.—The Jacobs Engineering Co., here, has been selected by Southwest Potash Corp., a division of American Metal Climax, Inc., to expand and revamp the muriate of potash plant in Carlsbad, N. M. at a cost of nearly \$3,000,000.

The engineering firm will perform the complete engineering, design, purchasing, and construction of this expansion, the second since the Carlsbad mine and mill were brought into production in 1952. Capacity increase will enable Southwest Potash to keep pace with expanding sales, and provide raw material for their nitrate of potash plant being designed for location in Vicksburg, Miss.

Plans are under way for modifying the conveying and screening equipment; increasing flotation and filtration capacities; adding a compaction unit; and providing storage capacity for the granular product.

The potash plant operates around the clock, every day of the year.

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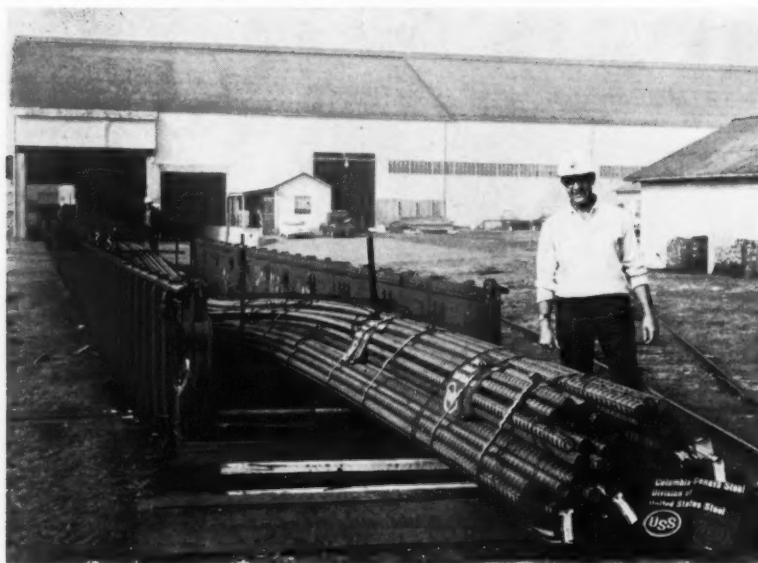
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U. S. Steel Ships Giant Rebars



Torrance, Calif.—Standing beside the 300 ton shipment of the largest and longest reinforcing bars ever made on the West Coast is G. E. Johnson, general foreman, rolling mill finishing and shipping departments of United States Steel Corp., Columbia Geneva Division. Bars were made in 100-ft. lengths and required seven rail cars for shipment to Seattle.

Fairbanks, Morse Buys San Francisco Company

SAN FRANCISCO—Fairbanks, Morse & Co., a major industrial component of Fairbanks Whitney Corp., has acquired a majority interest in Disposable Hospital Products, Inc., here, a company set up to manufacture hypodermic syringes and needles designed for one-time use as an effective guard against cross-infection of patients. Fairbanks, Morse has headquarters in Chicago.

In announcing the acquisition, Thomas G. Lanphier, Jr., president of Fairbanks, Morse, estimated that the company's disposable hospital products sales volume would exceed \$2,000,000 in 1961. He said studies indicated a rapidly growing demand for one-use disposable products which represent not only a new factor of safety in the administration of drugs but also a marked reduction in cost for hospitals, physicians and patients.

Lanphier said that Fairbanks, Morse's majority interest in the company was acquired on an all-cash basis.

The acquisition moves Fairbanks, Morse into a new field of light precision manufacture. Among its present products are diesel engines, scales and weighing systems, pumps, compressors, electric motors and magnetos.

Form Phoenix Firm To Make Plastic Bottles

PHOENIX—A new company to manufacture plastic bottles for containing bleaches and acids has been formed by Arizona Patent Research Laboratory Inc., 5115 N. 7th Ave., according to Leo Garvey, president and general manager.

The new concern, to be called Plastic Bottle Mfg. Co., will employ 15 persons initially. Garvey said his company holds patents on a new plastic container that pours like a pitcher to avoid spillage and splashing.

The plastic bottle company has a contract from McKesson and Robbins, Inc. to manufacture bottles in quart, half-gallon and gallon sizes, Garvey said. Production will begin next month.

Idaho Power Firm Plans Expansions

BOISE, IDAHO—The Idaho Power Co. has announced plans to invest between \$17,000,000 and \$20,000,000 in new service facilities during 1961, according to T. E. Roach, president.

A major portion of the expenditure will be used to put Oxbow dam into final production and to complete another high-voltage transmission line, Roach said.

Extruded Products Div. Moves to New Facility

ORANGE, CALIF.—Marking its second major expansion in five years, Extruded Products, Div. of Stillman Rubber Co., has moved into its new plant at 750 N. Main St., here.

The new 30,000 sq. ft. plant, on an 8½-acre site, more than doubles the size of the firm's former facilities. In addition to equipment moved from the Fullerton, Calif. plant, new equipment has been installed to increase and speed up production. All power lines and piping were installed sub-surface in the new ultra-modern plant.

In addition to production facilities, the single-level main building houses a completely equipped research and development lab, air-conditioned offices and conference rooms.

Production compounds are mixed in a specially designed two-level building at the rear of the plant. A streamlined material handling set-up brings raw materials in at the upper level and moves the mixed compounds out at the lower level ready for the extrusion process.

Extruded Products manufactures a wide range of extrusions for industrial and commercial applications. Large solid extrusions, intricate configurations, giant o-rings and specially designed inflatable sections are among their many products.

Worthington Adds Three California Distributors

ESCONDIDO, CALIF.—The Worthington Corp., industrial manufacturer, with headquarters at Harrison, N. J., has appointed three new distributors of mechanical power transmission products: Webb Pump Co., 252 West Grand, here, Marine & Ship Supply, Inc., 390 Jefferson St., San Francisco, and the S.A.I.S. Bearing Supply Co., Route 1, Dos Palos, Calif.

The new distributors will handle a complete line of Worthington power transmission equipment, including positive drives, variable speed drives, multi-wedge and multi-v drives.

Worthington manufactures a diversified line of capital goods equipment and machinery. The company's products include pumps and compressors; air conditioning, heating and construction equipment; steam power machinery, motors and generators; engines, turbines, valves and instruments.

PG&E Starts Major Work On Humboldt Atom Plant

SAN FRANCISCO — Major construction work was begun recently on the nuclear power unit of Pacific Gas and Electric Co.'s Humboldt Bay Power Plant. *Edward M. Petterson*, chairman of the Humboldt County Board of Supervisors, pulled the handle that poured the first yard of concrete to form the underground caisson that will contain the reactor.

The 60,000-kilowatt boiling water reactor plant is scheduled for completion in the summer of 1962. It will cost \$20,600,000, entirely financed by PG&E.

When the plant was announced in February 1958, PG&E said it was being designed to produce electricity with nuclear fuel at costs which will eventually be competitive with oil fuel at that location.

Bechtel Corp. of San Francisco is general contractor for the project. The reactor and related facilities are being designed and built by the General Electric Co. General Electric also is fabricating the 17.3 tons of uranium fuel that will comprise the first reactor loading.

To Install Precipitator at Lone Star Cement Co.

SEATTLE — The Lone Star Cement Co. plant at 3801 E. Marginal Way, here, will undergo an estimated \$241,000 improvement this year by installation of a precipitator in one of the existing buildings, according to a recent company announcement.

The work will be carried out by Western Precipitation Div., Joy Mfg. Co., Los Angeles. Plans by Structural Engineer Wendell Humphreys call for mechanical, electrical and structural work and installation of equipment.

Picker Parts of Fresno Acquires New Building

FRESNO, CALIF.—*Howard F. Parker*, president of Picker Parts, Inc., has announced the purchase of a new 8,000 sq. ft. building on a one-acre site at 5687 East Shields, from the Fannin Corp. in its Airport Industrial Park. Purchase price was approximately \$90,000.

Picker Parts, Inc. is one of the principal manufacturers of parts for mechanical cotton pickers, supplying cotton farmers in the Southwest.

Transfer Sutton Land Title to Permanente

PALMER, ALASKA — *Mason LaZelle*, manager of Matanuska Electric Association, has announced the transfer of title of 25 acres of land in the Sutton area to the Permanente Cement Co., Oakland, Calif.

The site will be used for a cement plant for which plans were announced last August. Plans include a \$5,000,000 plant with an initial productive capacity of approximately 500,000 barrels of cement a year.

John Fluke Mfg. Co. Expands Floor Area

SEATTLE—The John Fluke Mfg. Co., producers of test equipment and power supplies for the electronics industry, recently moved into additional floor space which doubles the plant area to 33,600 sq. ft.

The Fluke organization, which moved from its Seattle buildings to a new plant in Mountlake Terrace in October, 1959, reported that sales more than doubled during its fiscal year to \$3,318,748.

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Monarch Moves To New San Leandro Quarters

SAN LEANDRO, CALIF.—The Monarch Corp., distributors of electric motors, industrial rubber products, power transmission and bulk material handling equipment, has moved into a new warehouse at 1775 Timothy Drive, here.

L. R. Burmester, president, said the move gives the company more than a 50 per cent increase in space for increased inventories. Monarch serves the eleven Bay Area counties from San Leandro and a branch warehouse in Santa Clara, Calif.

Colorado Central Power Moving to New Quarters

LITTLETON, COLO.—Colorado Central Power Co. will move into its new \$140,000 "total electric" operations headquarters building at 1800 W. Belview Ave. this month.

The 16,800 sq. ft. two-level concrete block structure will house some 40 employes of the expanding engineering, plant accounting and dispatching departments.

U. S. Rubber's New Synthetic in Production



Inspecting one of the first polybutadiene truck tires fresh out of the curing mold is tire plant manager S. E. Harrison. Tire still has mold vent pips that are trimmed off by machine in later operation.

LOS ANGELES—US Rubber Co. is slated to begin production of a blend of polybutadiene synthetic rubber and natural rubber with output channeled into heavy service commercial tires for the West Coast.

It is the first commercial use of polybutadiene and will allow heavy duty tires to run at 15 to 20 degrees cooler and with an estimated 33 1/3% boost in mileage, the company said.

Also under evaluation are tires made entirely of the synthetic compound. These may be put into production as availability of polybutadiene increases. Forecasts call for production of polybutadiene and polyisoprene, another long wearing tire compound, to reach 225,000 long tons annually by 1962.

Contract Awarded for Moab Potash Facility

DENVER — The Stearns-Roger Mfg. Co., here, has been awarded a contract to build the \$25,000,000 potash processing plant near Moab, Utah, the Texas Gulf Sulphur Co. of New York announced last month.

Dr. C. F. Fogarty, Texas Gulf vice president, said the facility will be the largest producer of muriate of potash in the Western Hemisphere. The annual capacity will be more than 1,000,000 tons.

The new plant is scheduled to begin operating in early 1962, Fogarty stated. A Stearns-Roger spokesman said 400 to 500 men would be needed to build the plant.



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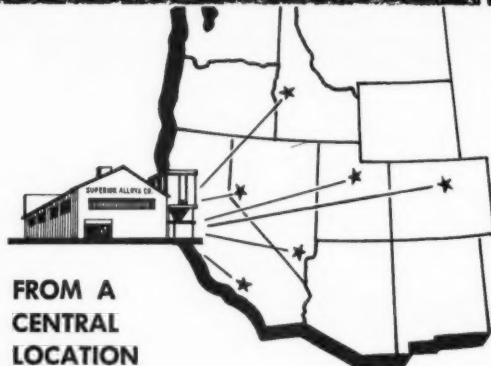
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\$2,000,000 in Equipment Modernization for P-I-E

OAKLAND, CALIF.—A \$2,000,000 equipment modernization and expansion program is underway at Pacific Intermountain Express, according to A. S. Glikbarg, president of the interstate motor freight common carrier.

Designed to achieve maximum utilization and efficiency and to afford flexibility in expediting shippers' freight, the systemwide equipment undertaking affects both line haul and local fleets. New models will be added. Over \$450,000 is earmarked for new city pick-up and delivery units, with the balance of the investment earmarked for on line haul and specialized freight equipment.

Among units scheduled for P-I-E fleets are 50 new 40-ft. refrigerated trailers; 150 new 40-ft. dry vans; 100 new 24 or 25-ft. vans for doubles operation; 109 new 40-ft. flat beds; and 100 new converter dollies.

Initial purchases for city fleets include 41 24-ft. van semi-trailers and 39 two-axle cab over engine short wheel-base tractors.

Scheduled for completion by April 1, P-I-E's equipment modernization program was begun early in January 1961. Included in the fleet dress-up package also are advance design, specialized units for the trucking firm's bulk commodity and import-export operations.

Boise Cascade Acquiring Western Stud Mills, Inc.

BOISE, IDA.—Through a stock exchange transaction Boise Cascade Corp., here, is acquiring Western Stud Mills, Inc., Elgin, Ore.

President of Western Stud, George W. Crippen, said his firm approached Boise Cascade because it wants "to have an organization acquire our mill which will continue to operate with two items in mind. First, we are interested in the economy of Elgin, and second, we are anxious that a continuity of supply be given regular customers for our products."

Crippen said that the "management of Western Stud is pleased that Boise Cascade will operate the mill in the manner which will be entirely satisfactory to the people of Elgin and our customers."

A Boise Cascade spokesman said no personnel changes are being considered.

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Aluminum Office Structure For Acme Metal Molding



Architect's conception of 6,800 sq. ft. building which will feature numerous innovations in the use of aluminum shapes and extrusions. Acme Metal Molding Co. will occupy the new structure as the headquarters building of its newly-acquired 6 1/2-acre site at 5022 Triggs St., Los Angeles.

LOS ANGELES—The world's first major all-aluminum office structure will be constructed here for Acme Metal Molding Co., a subsidiary of Northrop Corp., according to *Thomas V. Jones*, Northrop president. Acme manufactures architectural aluminum.

The preliminary design portrays the use of extruded aluminum columns with aluminum trusses on a 30-ft. structural module. Aluminum beams span truss to truss, and high strength extruded aluminum panels span beam to beam. It is proposed to use a sim-

ilar beam and panel system for floor construction.

Aluminum also will be used in partitions, suspended ceilings, furnishings, accessories and artwork. New electro-chemical color coatings and finishes will also be featured.

This concept shows a screen of three-inch aluminum I-beams which project 9 ft. beyond major glass walls.

Harvey Aluminum Co. is working closely with the architects in providing specialized technical and engineering services.

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Genie-Air Products Names Distributors

LOS ANGELES—*W. C. Walter*, national marketing manager of Genie-Air Products, here, has announced the appointment of two new distributors for the company's line of powered industrial ventilators.

Southwest Supply Co., San Diego, is the exclusive wholesale distributor for San Diego and Imperial counties in California, Yuma County, Arizona and the State of Baja California, Mexico. *Stewart A. Bayne* is president of Southwest Supply.

Slakey Brothers Co., Inc., Sacramento, Calif., will cover Northern California, Reno, Carson City, Winnemucca and Elko, Nevada.

Headed by *W. H. Slakey*, the Sacramento distributor also maintains branches at Oakland, San Jose, Modesto, Richmond and Redding, Calif.

Adapter Heads Contract to Western Conveyor Co.

BOISE, IDAHO—*Robert Burns*, president of Western Conveyor Co., here, reported Jan. 4 his firm had received a \$293,878 contract to manufacture 150,000 aluminum adapter heads as a component for advance rocketry.

He said the contract will allow employment of eight additional specialized production workers plus the purchase of two large automatic screw production machines.

"As a result of this new field of business, our firm anticipates that we will establish a permanent production department of these machines," he added.

Composition Board Plant Slated for Eugene, Ore.

EUGENE, ORE. — The Cascade Fiber Co., a new corporation, headed by *Eliot H. Jenkins* with headquarters here, has announced plans for construction of a wood composition board plant in the Eugene-Springfield area.

Paul R. Walsh, manager of the \$1,000,000 operation, said the company's present construction schedule would permit a one-shift operation to begin early in 1962. Immediate goals, he said, are centered on the manufacture of wood composition board with long-range plans to include production of a broad range of items for the building and construction fields.

460-Acre Industry Park Planned for Bay Area

BURLINGAME, CALIF. — Final plans have been completed for a 460-acre industrial park located in Marin County, San Francisco Bay Area, according to L. C. Smith and Richard R. Hanna, president and executive vice-president respectively of the newly formed development company named Smith-Hanna Black Point Co. Coldwell, Banker and Co. has been named exclusive sales agent.

The giant subdivision, believed to be the largest of its type in the Bay Area, is located immediately north of the Blackpoint cutoff, Highway 37, and Highway 101 intersection. It will be called the R. W. Hanna Industrial Park.

The development will be similar to several now established in the Bay Area. Plans call for completed streets and access roads, and all utilities will be put in so that prospective industries may build their own structures.

Paint Company Opens Western Region Plant

EL MONTE, CALIF.—Switzer Brothers, Inc. of Cleveland, Ohio have recently opened a new plant at 9314 E. Fern St., here, for more efficient service to Western users of their daylight fluorescent paints, pigments and printing inks. Within the new plant are facilities for manufacturing, laboratory, sales office and warehouse.

Fred Switzer, formerly of the firm's headquarters in Ohio, has established residence in Fullerton, Calif., and is Vice President in charge of the operation in the Western Region. He graduated from the University of California in 1943.

Intermountain Industries To Make Compact Trailers

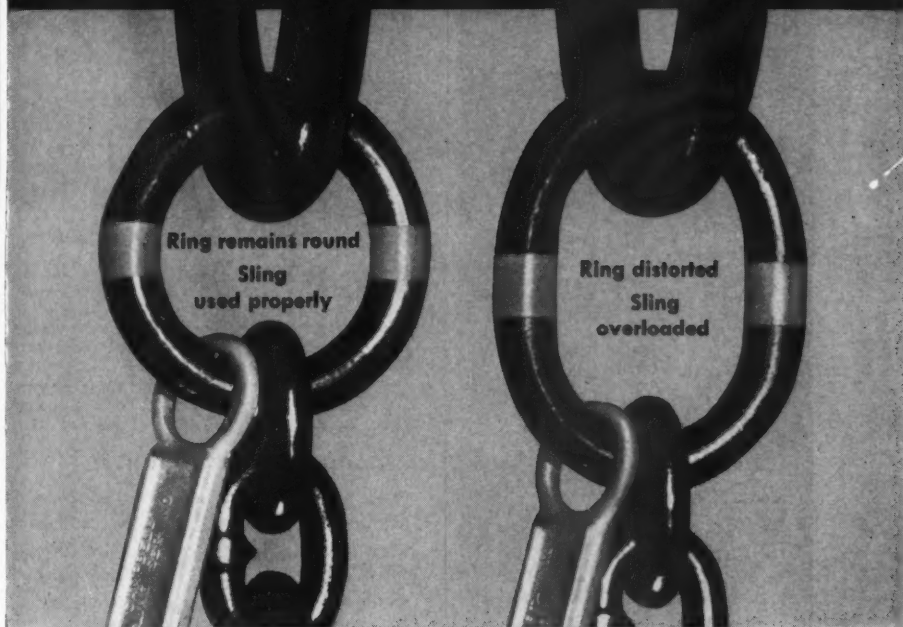
SIERRA VISTA, ARIZ. — Intermountain Industries, Inc., will manufacture small, compact trailers in the 16-ft. category, employing about 28 persons and turning out about 10 units daily.

The new industry here will manufacture under the trade names of Glass House and Mobilodge Travel Trailers.

Gordon Matthews, former vice president of Beiser Aircraft, will be general manager.

The new firm will represent one of the first industrial plants to be placed in this area, it was reported recently.

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- Safety programs are easier to maintain — with the **WARNING RING's** built-in safety that protects men and material!
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SENTRY SLINGS, available in all types, are made from Cam-Alloy steel chain only . . . *available at no extra cost!* All carry the Campbell Guarantee and Certificate of Test.

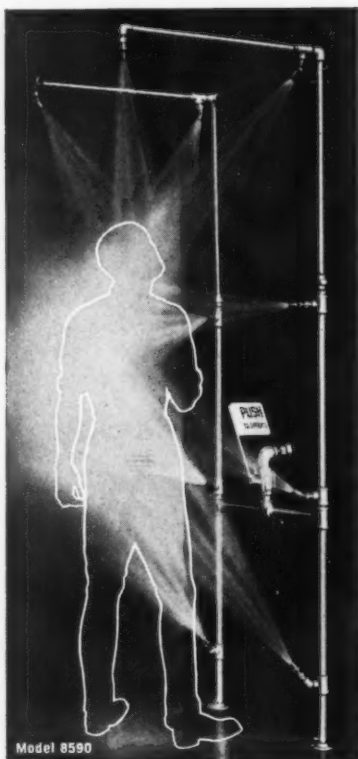
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Simonds Abrasive Co.'s New Los Angeles Quarters



This new Southern California branch warehouse, sales office and service shop at 1950 East 20th St., Los Angeles, will serve as a combination facility for Simonds Saw & Steel Co., and its subsidiaries, Simonds Abrasive Co. and Heller Tool Co., serving Southern California, Arizona, Southern Nevada and New Mexico. The new branch is the third combination Simonds-Heller operation along the West Coast. The other two branches are located in San Francisco and Portland.

Grain Handling Facility Planned on Willamette

PORTLAND—Louis Dreyfus Corp., whose grain handling facilities, here, were partially destroyed by fire in July, 1960, plans to rebuild an expanded facility which will be one of the most modern grain handling plants in the nation.

Specifications call for facilities which will simultaneously unload barges at the rate of 750 tons an hour, unload rail cars at the same rate, and load ocean-going vessels at the rate of 1,500 tons an hour. Storage will be provided for about 1,500,000 bushels of grain.

New ship-loading facilities with six spouts will be provided, along with two shipping belts, rail car dumper, two marine legs, four new scales, one new car loading spout, a new barge dock, new track shed, railroad tracks which will encircle the plant, and about 30 new storage bins.

Facilities not destroyed by the fire will be used, according to *George Lloyd Levin*, consulting engineer for the project.

IRC Names Luscombe Rep Control Component Div.

PASADENA, CALIF. — The Luscombe Engineering Co., here, has been appointed manufacturers' representative in California for International Resistance Co.'s Control Components Div.

The firm, under *James T. Luscombe*, president, is the latest to be named under IRC's recently-formed nationwide network of engineering Sales Department representatives.

Bulk Chemical Plant Established in Denver

DENVER—Sherwood Solvents, Inc. has announced the opening of a new chemical bulk installation here at 1535 W. 13th Ave. on a one-acre site. The plant, to serve Colorado, Wyoming, New Mexico and Utah, is the newest bulk plant put into operation by Sherwood & Co., Inc., of Kansas City, Mo.

According to *A. A. Sherwood*, president, the Denver plant has taken advantage of every up-to-date piece of equipment to give absolute safety, fast and efficient customer service, and to eliminate any contamination of the chemicals. Each material has its own individual line, pump and meter. A complete laboratory will allow development work and routine inspection of all incoming and outgoing commodities.

Drum stocks of special chemicals, polyester resins, catalysts and plastics materials are available from the 7,000 sq. ft. warehouse.

Copperstate Supply Sold to Anderson Air Activities

PHOENIX — The Copperstate Supply Company, Inc., distributors of ceramic and plastic floor tiles, has been purchased by Anderson Air Activities, Inc. of Wisconsin and Missouri.

The Anderson concern will make its home offices in Phoenix at 2910 W. Cheery Lynn Dr., the old Copperstate address. Officers of Anderson Air are *E. Merritt Anderson*, president; *James W. O'Hara*, vice president; and *J. L. Alexander*, secretary.

New Cutler-Hammer Plant In Operation at Belmont

BELMONT, CALIF.—Cutler-Hammer Inc., has begun operations in its new 35,000-sq. ft. plant in the newly developed Belmont industrial area. The plant houses the company's manufacturing, sales office and warehouse activities.

Previously, the electrical firm had manufacturing and office facilities in San Francisco and a warehouse in San Jose.

According to *J. M. Cook*, vice president, marketing, the consolidation of these activities under a single roof will result in more efficient operations and will provide expanded and faster service for the San Francisco area.

The new plant produces Cutler-Hammer's control lines and power distribution equipment.

Michelin Tire Building New Western Div. Plant

SAN FRANCISCO—Michelin Tire Corp. has announced plans for establishment of new Western Division offices and distribution facilities in the Crocker Industrial Park.

Serge Pavlinin, Western Division manager of the 73-year-old tire firm, said the relocation of operations would take place as soon as the new building is completed next spring. The modern, 40,000 sq. ft. structure is being erected by Crocker Land Co., owners and developers of the 250-acre park located just south of the Cow Palace in San Mateo County. The tire firm will occupy the building on a long-term lease.

Michelin's present offices are in the World Trade Center and distribution facilities are located at 1510 Sansome St., San Francisco. The two expanding operations will be combined in the new building.

Bay Area Air Pollution Board Asks Tax Increase

SAN FRANCISCO—The Board of Directors of the Bay Area Air Pollution Control District voted last month to ask the State Legislature to amend the District's law to provide a one cent increase in the District's permissible tax rate.

The additional funds may be needed for effective enforcement of the District's anti-smog regulations by the District staff and to reimburse local agencies for enforcement work.

J. O. Ross Engineering Moves Seattle Office

SEATTLE—*Paul Goldner*, district sales manager of J. O. Ross Engineering, a Division of Midland-Ross Corp., recently announced completion of a move to larger quarters at 2909 Third Ave., here. The office was formerly located in the Skinner Bldg.

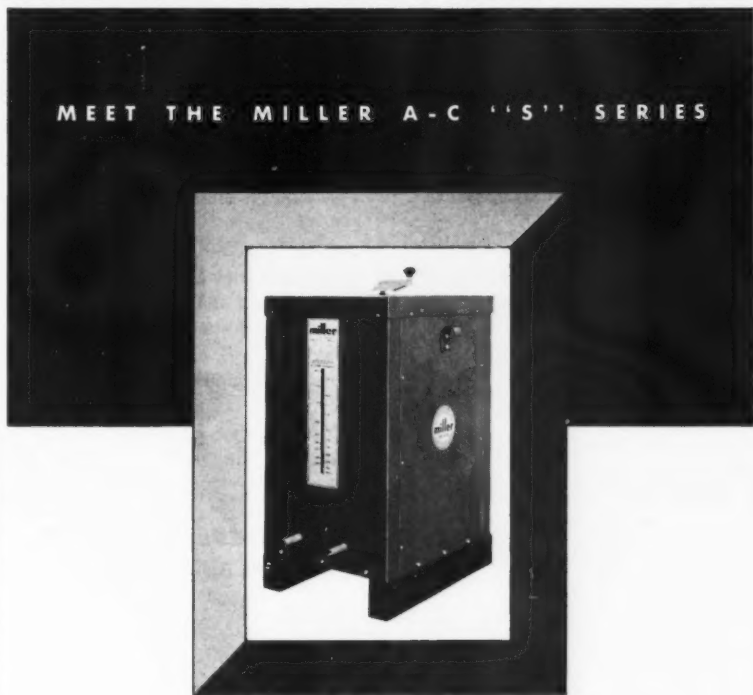
Ross Engineering manufactures air processing equipment in a variety of industries including rubber, paper, plastics, automotive, textile and metal-working.

Fourth Plant Added In Perkin Expansion

EL SEGUNDO—A fourth plant has been added as part of a general expansion program by Perkin Electronics Corp., here, according to president *Philip Diamond*. The company now has a total of 42,000 sq. ft. of floor space.

The new facility, located behind plants I and II on Kansas St., will enable Perkin to expand its manufacturing and assembly operations in d. c. power supplies for commercial and missile-system applications.

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United Air Lines' Jet Overhaul Center



Recent view of the huge maintenance base at San Francisco where United Air Lines overhauls its fleet of more than 200 aircraft shows several additions for jet aircraft maintenance. Identified by numbers are (1) warehouse; (2) jet engine test cells; (3) jet engine overhaul plant; (4) piston engine test cells; (5) jetliner overhaul dock; (6) piston engine overhaul plant; (7) piston engine aircraft docks; (8) offices and sheet metal shop.

SAN FRANCISCO—Aircraft overhaul operations at the San Francisco Maintenance Base of United Air Lines cost approximately \$44,000,000 in 1960, according to J. A. Herlihy, senior vice president-engineering and maintenance.

Nineteen jet airframes were overhauled in the year, along with 141

piston engine airframes, 231 turbojet engines and 916 piston engines. This represented 7,657,000 man-hours, Herlihy said, with jetliners accounting for 31% of the total.

United employs 4,400 at the San Francisco base. The company had 205 aircraft at year-end, including 14 Boeing 720 and 31 DC-8 Jet Mainliners.

Marquardt's Pomona Div. Occupies New Facility

POMONA, CALIF.—Occupancy of a new 27,500-sq. ft. engineering building was announced recently by the Pomona Division of The Marquardt Corp. The new facility, located at 2771 North Garey Ave. here, will more adequately house the engineering and executive offices of Pomona, the corporation's electronic division.

The Pomona Division develops and produces electronic test and checkout equipment, data simulators, and security devices.

In making the announcement, Dr. W. B. Sell, vice president of Marquardt and general manager of the Pomona Division, noted that the location of the facility was within the boundaries of the recently announced Pomona Valley College Research and Development Center. This center is being developed along the lines of the Stanford Industrial Park at Palo Alto, Calif. and is a carefully planned industrial complex consisting of 201 acres and restricted to light industry.

Asbestos Fibre to be Processed at Coalinga

SAN FRANCISCO — Johns-Manville Corp., New York, and the Kern County Land Co., here, have announced plans to place into commercial production a 1,500-acre, high-grade asbestos deposit at Coalinga, some 4,000 feet up in the Diablo Mountain range of central California.

The claims and leases covering this acreage were acquired by the Kern County Land Co. A new operating company, the Coalinga Asbestos Co., Inc., has been formed jointly by the two firms with Johns-Manville owning a majority interest in the subsidiary company.

A new mill will be built at the deposit to process "a high-quality asbestos fibre for the manufacture of asbestos-cement, asphalt-asbestos and vinyl-asbestos products," the announcement said.

The new Coalinga Mine, 160 miles southeast of San Francisco and 190 miles northwest of Los Angeles, will use surface mining methods.

Special Masonry Cement Developed for Arizona

CLARKDALE, ARIZ.—A masonry cement specially compounded for Arizona's climatic conditions is now under production at the Phoenix Cement Co.'s plant, according to Ray R. Adams, president.

Called Aridzone Masonry Cement, it requires only the addition of sand and water to make a uniform masonry mortar which performs well during the hottest summer days, Adams said. Aridzone has been field tested in Northern and Central Arizona for one year to insure that the cement will perform year-round under all climatic conditions.

The masonry cement will remain firm yet retain moisture to prevent mortar from drying too fast under conditions of low humidity and high temperature, Adams said.

Phoenix Cement Co.'s \$16,000,000 plant at Clarkdale is presently producing all the cement required by Glen Canyon Dam and enough more to serve users in Northern and Central Arizona. A new kiln is being added and by next summer the plant's productive capacity will be up 40 per cent.

Duncan Electronics Builds at Costa Mesa

SANTA ANA, CALIF.—Scheduled for completion May 1, Duncan Electronics, Inc., here, recently broke ground for the first 20,000 sq. ft. increment of an ultimate 100,000 sq. ft. development at Costa Mesa, according to Donald C. Duncan, president.

The new plant will be situated on a 6½-acre site at Fairview and Warehouse roads. The property is included in the Segerstron Industrial District.

Duncan, manufacturers of potentiometers and other precision electronic devices, will initially staff 75 with plans for a ten-fold personnel increase.

SBA To Issue Directory Listing Local Firms

LOS ANGELES—Plans are underway for revision of the R & D directory of the Small Business Administration that lists Southland firms engaged in this activity.

Firms currently listed will have data updated and a large number of new firms will be added to the directory that is due for issue in June, according to Donald McLarnan, SBA regional director.

Rome Cable Establishes Special Products Setup

LOS ANGELES—Expansion to meet the growing and complex needs of the missile, rocket, and electronic instrumentation fields was announced last month by the Rome Cable Div. of Aluminum Co. of America.

A. D. R. Fraser, Rome Cable president, said that the division has established new electrical cable production facilities, geared to these future markets in a new building at 2937 Tanager Avenue, which also houses Rome's regional warehouse.

Called the Special Products Facility, the new production unit is now in operation. Its task, Fraser said, is custom fabrication of cables and cable assemblies, to customer specification.

Specialized equipment of the new unit permits a wide range of complex and highly specialized electrical cables and assemblies. Among its capabilities: Single cables measuring up to four inches in diameter; cables consisting of as many as 330 separate conductors; incorporation of special connecting devices reliable under severe environmental conditions; and unusual configurations of cable.

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New Plant For Instrument Lathe Manufacturer



Louis Levin & Son, Inc. recently moved into these new facilities at 2573 Hayden Ave., Culver City, Calif. Located on a convenient railway spur, the new factory has 10,600 sq. ft. of manufacturing space. Originating in 1942 as a manufacturer of special time pieces and timekeeping devices, the company now makes instrument lathes.

Braun Company Adds New Material Handling Lines

LOS ANGELES—The Robert H. Braun Co. has announced the reorganization of its sales department into two divisions to better service the different types of materials handling equipment that the company handles.

Under the new set-up *Robert H. Braun, Jr.*, president, will be in charge of all sales and service activities pertaining to Clark Materials Handling Equipment, and *Don S. Ferguson*, vice president, will head the newly reactivated Robco Div., which will sell and service all of the other lines handled by the organization.

One of the new lines to be carried during 1961 is manufactured by Rack Engineering Co. and includes hydraulic and storage equipment, pallet trucks storage racks, conveyor carts, sheet feeding tables, elevating tables, and steel and wire containers.

The Robco Division will represent Alvey Conveyor Mfg. Co., American Dockbridge Corp., Apex Welding and Fabricating Corp., Prime-Mover Co., and the Nutting Truck and Caster Co. all on exclusive Southern California basis.

Pacific Sintered Metals Moves in New Building

LOS ANGELES—The Pacific Sintered Metals Co., engineers and manufacturers of custom molded powdered metal products, have moved into their new building at 8333 Hindry Ave., here, doubling previous floor space.

The company makes oilless bearings, machine components, porous bronze filters and magnetic pole pieces.

Fernholtz Machinery Co. Opens San Diego Office

LOS ANGELES—Announcing the opening of a San Diego office staffed with sales engineers, *Frank Fernholtz*, vice-president of Fernholtz Machinery Co., here, said that the opening marks the first step in the firm's expansion program to better service growing Southland industry. The new San Diego office is located at 2420 University Ave.

Fernholtz, established in 1886, represents a number of firms in the West covering the ceramic, die casting, chemical, plastic and general industrial field. Among firms represented are: Kux Machine Co., Moyno Pumps, Wabash Metal Products Co., Great Western Mfg. and International Clay Machinery of Delaware Inc.

MHD Research Moves Into New Facilities

NEWPORT BEACH, CALIF.—MHD Research, Inc., here, is moving its general offices and primary research laboratories into a new, 10,000 sq. ft. plant, located at 1535 Monrovia Ave., according to *Donald F. Howard*, president.

The new facility became essential with the expanded research and development activities in the fields of magnetohydrodynamics, chemical processing, energy conversion, electric propulsion and plasma jet wind tunnels in which the corporation is engaged.

MHD will maintain present facilities and laboratories for continued development work on projects in the petro-chemical field and for additional research in other processing industries.

Penta Laboratories Opens New Facility

SANTA BARBARA, CALIF.—The addition of a new research and development laboratory building is the latest step in the general expansion program of Penta Laboratories, Inc., here. The laboratory, which is separate from the manufacturing plant, will operate under the direction of *J. J. Woerner*, director of research.

Penta, manufacturer of power and special-purpose electron tubes, will use its new facility for material studies, process technology, and new product development work which had been conducted in the main plant.

Develop Tidelands For Industry Use

CHULA VISTA, CALIF.—Preparation of 75 acres of tidelands for industrial development is underway here with proceeds from a \$1,500,000 bond issue voted by the city of Chula Vista in 1959, according to a recent report from the Chula Vista Chamber of Commerce.

The Chamber report said that the development work is about 50 per cent completed. Chula Vista is the second largest city in San Diego County.

Apex Steel President Elected NAM Director



LOS ANGELES—*Robert S. Grover*, (left), president of Apex Steel Corp., Ltd., here, was elected director from California of the National Association of Manufacturers at that group's recent 65th Annual Congress of American Industry. Congratulating him is NAM's newly elected president, *John W. McGovern*, former president of U.S. Rubber Co. Grover, active in Young Presidents' Club, has been president of Apex Steel since 1956.

Mobil Oil Makes Changes in Pipeline Operations

LOS ANGELES—Major changes in the organizational structure of the West Coast Pipe Lines of Mobil Oil Co. were announced February 1 by J. S. Black, manager.

H. W. Witter, presently assistant to the manager, has been appointed manager of operations. He will be responsible for all field operations and will be headquartered at Mobil's Torrance, Calif., refinery.

Pipeline operations under the new set-up will be organized into six geographical areas; three in the San Joaquin Valley and three in the Greater Los Angeles Basin.

W. H. Webb was named as manager of oil movements with headquarters in the Mobil Building, Los Angeles. Members of his oil dispatching group will transfer to Torrance.

West Coast Pipe Lines is responsible for the transportation of crude oil and finished products for Mobil via a network of pipelines between producing areas, refining and processing installations, marine terminals and storage locations in Southern California.

Zero Mfg. and Lyon Aircraft In Marketing Pact



After signing reciprocal marketing agreement between Zero Mfg. Co. and Lyon Aircraft Services, officials of the two companies examine products they will share, Zero's modular container system and Lyon's electro-suspension shock mounting system. From left, William McCann, chief engineer, Lyon; John B. Gilbert, president, Zero; Joe Daniels, vice president in charge of sales, Zero; and Austin H. Hathaway, vice president, Lyon.

BURBANK, CALIF.—Zero Manufacturing Co. and Lyon Aircraft Services have entered into a reciprocal marketing agreement which will enable the two Burbank companies to offer ex-

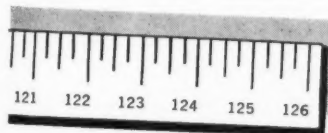
tended services within their respective fields of precision packaging and transport, the company principals announced recently.

The agreement was signed by John B. Gilbert, president of Zero, and Austin H. Hathaway, vice president of Lyon Aircraft Services, a division of Lyon Van & Storage Co., Inc., Los Angeles.

The two companies will share two exclusive product lines: Zero's modular container system, a line of precision containers of aluminum, magnesium or steel which can be made on a production line basis in virtually any size or shape; and Lyon's electro-suspension mounting system.

Westinghouse Building Astroelectronics Lab

LOS ANGELES—The Westinghouse Electric Corp. has announced that construction is underway on the company's new "Astroelectronics Laboratory" in the Conejo Valley 40 miles northwest of Los Angeles.



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Elotec Quadruples Plant Facilities

EL MONTE, CALIF.—In an expansion program which will quadruple its present plant area, the Elotec Corp., here, has leased an additional 6000 sq. ft. building, and is starting construction on a 13,000 sq. ft. plant, both on sites adjacent to the present quarters at 1425 N. Lidcombe Ave., here.

The 6000 sq. ft. plant will be used for increased production of electronic components, and the 13,000 sq. ft. facility for expanded production of the company's negative ion generator-air purifier. The larger plant, scheduled for completion in 120 days, will bring the total plant space to 25,000 sq. ft., according to *Clarence Pool*, president.

Philco Corp. Moves G & I Group Offices

HOLLYWOOD, CALIF.—Philco Corp. has taken over the entire third floor of a new office building at 7715 Sunset Blvd., here, virtually tripling its general sales offices for non-consumer products activities in this area, according to *Milton W. Heyne*, regional

manager for the company's Government and Industrial Group.

The company's G & I Group, formerly located at 1435 South La-Cienega, Los Angeles, includes five divisions: the Communications Systems Div., the Communications and Weapons Div. and the Computer Div., all headquartered in Philadelphia, Pa., or environs; the Western Development Laboratories of Palo Alto, Calif. and Sierra Electronic Div. of Menlo Park, Calif.

Reynolds Forms Structural Erection Service at Phoenix

PHOENIX — The Reynolds Metals Co. has announced formation of a structural erection service at its structural fabrication plant, South 19th Avenue and Jackson.

Charlie F. Weed, a civil engineer from the Reynolds Reduction Plant at Sheffield, Ala., heads the new function which will be primarily responsible for on-site erection help to customers.

The Reynolds structural fabrication plant has been producing aluminum transmission towers, switchyard structures and other heavy structural units.

Douglas-American Motors Merger Rumor Squelched


LOS ANGELES—Rumors of impending merger of Douglas Aircraft and American Motors and subsequent replacement of *Donald Douglas, Jr.* as Douglas president were firmly squelched here by *George Romney*, American Motors president.

Romney issued his statement while in Los Angeles attending a Douglas board of directors meeting. He has served on the board since last summer.


"There is absolutely no foundation whatsoever for any rumors or reports of this character," Romney emphasized. He went on to praise the "unexcelled accomplishments" and the capacity of Douglas management during the current problem period facing the airframe industry.

Ducommun Expands LA Metals Service Center

LOS ANGELES—The Ducommun Metals Co., here, has installed two five-ton capacity stacker cranes, cantilever storage racks and has converted to a center aisle loading plan. A 40,000 sq. ft. addition to the company's service center has also been completed.


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U.S. Steel Completes First Unit at Phoenix

PHOENIX—The first of four major production buildings and the administrative office building have been completed at the site of United States Steel Corp.'s Consolidated Western Div. plant, 210 So. 51st Ave.

Construction of the new plant will cost almost \$1,000,000. A. E. Djerf, manager, said the first production building, the culvert shop, has been erected and production of large and small diameter culvert pipe has been transferred from the company's old location at 600 W. Grant.

Transfer of manufacturing facilities will take place gradually so there will be no interruption of customer service, Djerf said. The new office building features a rear wall designed for removal when expansion becomes necessary to accommodate enlarged sales, engineering, design and administrative offices.

Completion of the entire plant is expected by mid spring.

New Facilities Underway For Metron Instruments

DENVER, COLO. — Metron Instrument Co., 18-year-old firm engaged in design and manufacture of electronic and mechanical control instruments, has announced construction is underway on a three-building complex in Littleton's industrial park.

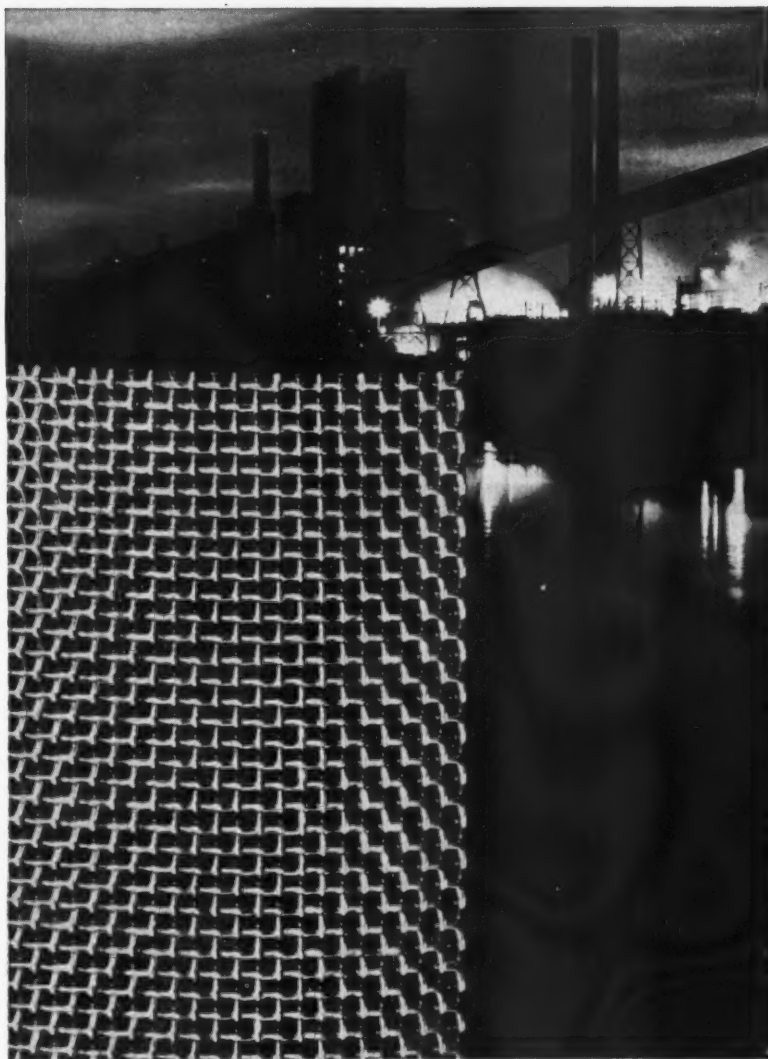
C. J. Sommer, president and general manager, said construction began last month on the first unit of the integrated electronics, electro-mechanical engineering and manufacturing complex.

Initial phase, scheduled for completion by mid-1961, will provide 12,000 sq. ft. of air conditioned space for more than 100 employees. The company is presently located at 432 Lincoln St., here.

Glo-Quartz Electric Heater Establishes Local Plant

PASADENA, CALIF. — Glo-Quartz Electric Heater Co. is establishing Southern California plant headquarters at 188 N. Berkeley, here, according to George Strokes, Western manager of the firm.

A full range of industrial heating equipment including electric immersion heaters and other special purpose items will be fabricated at this location.



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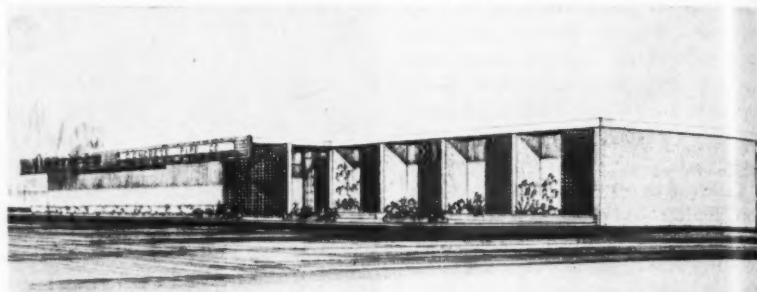
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New Headquarters for American Concrete Pipe Co.



PHOENIX — American Concrete Pipe Co., manufacturers of a wide range of concrete pipe products, opened a new \$60,000 administrative office building this month at 2325 So. 7th St., here.

The 5,000 sq. ft. concrete block building features a Cordek roof, solar screens of ornamental squares, and

aluminum sash. The building is designed to allow expansion on one side.

American Concrete recently acquired 10 adjacent acres of land as part of a general expansion program. The concern fabricates such items as pressure water mains, highway culverts, irrigation systems, and storm and sanitary sewers.

Climax Molybdenum Five Year Expansion Program

LEADVILLE, COLO.—Climax Molybdenum Co. has begun work on a five-year \$20,000,000 expansion program which will eventually add 100 persons to the payroll, according to Resident Manager *Ed Eisenach*.

First work, estimated to cost about \$10,000,000, will be tunneling into Ceresco Ridge a quarter mile south of present workings in Bartlett Mountain at Climax.

Second phase will tunnel two new horizontal levels in the present mine off a new shaft to sink 700 ft. into the mountain at a cost of another \$10,000,000.

Azusa Firm Acquired By Cetron Electronics

AZUSA, CALIF.—Acquisition of Scientific Optical Corp., here, and its subsidiary, Precision Coating Laboratories, Inc., by Cetron Electronic Corp. for an undisclosed amount of cash and Cetron stock was announced recently by *Paul Wallins*, president of Cetron.

Wallins said Scientific Optical Corp. and Precision Coating Laboratories will be incorporated into Cetron's scientific optical division with headquarters in Pasadena under the direction of *Dr. W. Ewart Williams*.

Scientific Optical Corp. manufactures optical components, lenses, prisms and mirrors for producers of fine optics.

New Plant for Transo Envelope Co. Underway

GLENDALE, CALIF.—Construction began Feb. 1 on a \$275,000 plant for the Transo Envelope Co. at 6513 San Fernando Rd., here. The new plant, located on a 2½-acre site, will be double the size of the company's present facilities at 900 Paula Ave. The new building is scheduled for completion by May 15.

According to Transo's Western regional manager, Vice President *Mayne B. Stevenson*, new high speed equipment will quadruple the plant's present output.

The equipment will include electronic devices to control speed, quality and uniformity with a greater degree of accuracy.

Transo has major plants in Chicago and Jersey City, New Jersey.

Two Electronic Companies Discontinue Merger Talks

LOS ANGELES — Merger negotiations between Electronic Specialty Co. and American Electronics, Inc. have been discontinued, according to a joint statement by *William H. Burgess* and *Phillip W. Zonne*, presidents of the two companies. Principal reason given was the inability to reach a mutually satisfactory basis for exchange of stock.

Proceedings for the merger of D. S. Kennedy & Co. into Electronic Specialty Co. will continue as planned, Burgess noted.

Ro-Mark of Sacramento To Open Utah Facility

OGDEN, UTAH—Ro-Mark of Sacramento, Calif., will open a branch plant in Hooper near the end of February to manufacture containers and packing supplies for guided missile components, according to Roy Bingham, company president.

The plant will employ between eight and 20 persons and is to be located in a 10,000 sq. ft. building at 5300 South and 5200 West.

The new facility has contracts to produce containers for Thiokol Chemical Corp., Marquardt Corp. and Hercules Powder Co., he said.

The eight-year-old firm also operates a metal fabricating and machine tool shop in Sacramento.

Gulf Oil Completes Gas Find in Colusa Country

BAKERSFIELD, CALIF.—Gulf Oil Corp. of California has completed a new gas discovery approximately 40 miles north of Sacramento in Colusa County.

On an open flow potential test, the company's No. 1 Stapp flowed a calculated 36,000 Mcf per day. The well, reaching a depth of 8,000 ft., is the first drilled by Gulf on its 4,500-acre block.

Perforated at the interval 6968-7022 ft., the well encountered 28 ft. of net pay. On test, it produced 10,452 Mcf per day with 1928 psi. flowing pressure.

Gulf discovered the new sand as it drilled an intended offset to Occidental Petroleum Co.'s No. 1 Sachreiter, the discovery well of West Grimes field.

Vending Machine Company Plans Office Building

FRESNO, CALIF.—Gordon L. Schneider, vice president and general manager of Vendorlator Mfg. Co., here, has taken an option to purchase its leased facility in Pinedale from Calcot, Inc., Bakersfield, Calif., for approximately \$1,000,000.

Vendorlator plans to erect an office building on the Pinedale property for about \$200,000 to which all offices the Railroad Ave. plant will be moved. The company is concentrating on the manufacture of vending machines, having ceased production of defense type contracts.

Acme Resin Opens West Coast Office

GRANADA HILLS, CALIF.—Irving B. Polhemus vice president and general manager of the Acme Resin Corp., has announced the opening of a new West Coast office at 17417 Chatsworth St., here. Main office of Acme, producer of Diallyl Phthalate molding compounds, is in Forest Park, Ill.

Walter P. Bennett has been named Western sales manager of the new Acme office which will serve the entire Pacific Coast area.

Air Filter Sales & Service Named Rep for Murray Mfg.

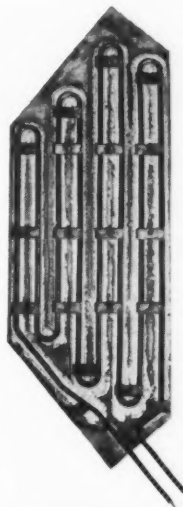
SEATTLE—Air Filter Sales & Service, 1823 Tenth Ave., West, here, has been appointed distributor of Grid Unit Heaters, Blast heaters and radiators, according to an announcement from D. J. Murray Mfg. Co., Wausau, Wisc.

The new distributor will cover 19 counties in the Western part of the State of Washington which include the cities of Seattle and Tacoma; the entire States of Oregon and Alaska.

MONTGOMERY BROTHERS, INC.

ENGINEERING REPORT
NO. 9

CLIENT: A Large West Coast Mill
PRODUCT: Chromalox Clamped-on Tubular Elements



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A long tubular element with a low watt density was selected to provide lower sheath temperatures and extended heater life.

In choosing electric heat for a given application, extreme care must be exercised to the basic design of the element. Montgomery Brothers, with their many years of experience in the field of electric heat have successfully solved many difficult problems. This is "customer service", a "no obligation" service long associated with the Montgomery Brothers name.

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Contract News for the West

The U. S. Army Ordnance District, Los Angeles, with headquarters at 55 S. Grand Ave., Pasadena, announced Jan. 27 the award of over \$7,500,000 in contracts during the past six weeks to the following:

Sperry Utah Engineering Laboratory, Salt Lake City, \$1,908,887 for Sergeant ground handling equipment and repair parts; \$1,352,000 for continued Sergeant missile research and development; \$984,000 for production engineering services; \$302,059 for Sergeant missile training equipment, and \$120,000 for training publications.

Convair/Pomona, Div. General Dynamics Corp., Pomona, Calif., \$999,801 for research and development on Redeye missile program.

Harvey Aluminum, Inc., Torrance, Calif., \$565,057 for cartridge cases, and \$25,000 for integral barrel chamber guns.

Douglas Aircraft Co., Inc., Santa Monica, Calif., \$276,349 for Nike missile system repair parts, and \$89,951 for supplies and services related to the Honest John missile.

Firestone Tire & Rubber Co., Los Angeles, \$242,671 for Corporal missile repair parts and ground handling equipment.

Telemeter Magnetics, Inc., Culver City, Calif., \$169,650 for continued research and development of a digital memory system.

New Mexico State University, University Park, N. M., \$110,000 for field tests and evaluation studies within the missile programs.

Associated Aero Science Laboratories, Hawthorne, Calif., \$89,435 for civilian technical assistance at U. S. Army Ordnance Guided Missile School, Redstone Arsenal, Ala.

Radioplane, Van Nuys, Calif., \$86,352 for additional target missile flight services.

Aetron, Div. of Aerojet-General Corp., Covina, Calif., \$133,539 for instrumentation and installation of missile system test facility.

Norris-Thermador Corp., Vernon, Calif., \$53,340 for research and development for rocket motors.

Consolidated Western Steel Div., U. S. Steel Corp., Los Angeles, \$44,741 for motor case assemblies.

Advanced Technology Corp., Golconda, Calif., \$44,128 for design, development and testing of pullbooster.

Permanent Filter Corp., Los An-

geles, \$35,308 for Nike missile repair parts.

The U. S. Army Ordnance District, San Francisco, with headquarters at 1515 Clay St., Oakland, announced Jan. 13 a supplemental award of \$6,850,500 to *Food, Machinery & Chemical Co.*, San Jose, Calif. for 300 additional M-113 aluminum armored personnel carriers. Over the past several years, \$69,000 was awarded Food Machinery & Chemical for 2,280 M113 vehicles.

Other contract awards by the San Francisco Ordnance District were:

Security Parachute Co., San Leandro, Calif., \$457,238 for electric blankets for Honest John rockets.

Laher Spring & Electric Car Co., Oakland, Calif., \$22,955 for automotive spring assemblies.

Isaacson Iron Works, Seattle, an additional award of \$25,546 to produce highly technical material for the new Davy Crockett atomic battlefield weapon.

Hughes Aircraft Co., Culver City, Calif., a program which is expected to cost upwards of \$50,000,000 to build a soft landing lunar spacecraft called Surveyor authorized by National Aeronautics and Space Administration. Plans call for seven Surveyors to be launched to the moon in the period 1963-66. California Institute of Technology Jet Propulsion Laboratory will provide technical direction for the program.

Yuba Consolidated Industries, Inc., Southwest Welding & Mfg. Div., Alhambra, Calif., a multi-million contract for all steel work for underground missile silos and related structural steel items for Little Rock Air Force Base Titan II Missile installation.

Packard Bell Electronics Corp., Los Angeles, prime contract for \$3,000,000 for an automatic checkout system for the Saturn space vehicle booster from National Aeronautics and Space Administration.

Fluor Corp. Ltd., Power Div., Los Angeles, \$3,000,000 for construction of a 175,000 kilowatt steam-electric turbo-generator at Kansas Power & Light Co.'s Tecumseh, Kan. power plant.

Hoffman Electronics Corp., Products Div., Los Angeles, \$3,000,000 for additional TACAN air navigational equipment for the U. S. Air Force's

B-58 supersonic bomber and the T-38 jet trainer.

Pacific Semiconductors, Inc., Hawthorne, Calif., purchase orders totaling \$2,125,861 from Autonetics Div., North American Aviation, Inc. for delivery of PSI ultra-high reliability silicon computer diodes to be used in Minuteman ICBM production.

Telecomputing Services, Inc., a subsidiary of Telecomputing Corp., Los Angeles, has received a contract in excess of \$2,000,000 from Army Ordnance Corps to provide data reduction for daily missile firings at White Sands Missile Range, New Mexico.

American Electronics, Inc., Los Angeles, contracts totalling \$1,940,000 including orders from General Electric Co., Syracuse, N. Y., and Boeing Airplane Co., Seattle.

Royal Industries, Inc., Los Angeles, new orders totaling \$1,200,000 from Boeing Airplane Co., Wichita, Kan., for production of hydro-mechanical components for the B-52 jet bomber; from Thompson-Ramo-Wooldridge for platform positioning jacks for the Pershing missile; and from Hiller Aircraft Corp. for helicopter transmissions. *Royal's Vard Div.*, Pasadena, Calif., also received a contract in excess of \$700,000 from Westinghouse Electric Corp. for atomic reactor equipment to be used on atomic submarines.

Networks Electronic Corp., Van Nuys, Calif., more than \$1,000,000
(Continued next page)

CLASSIFIED SECTION

Space is sold as advertisers' inches. All advertisements in this section are 1/8 inch short of contracted space to allow for borders and composition. Rates are \$16.00 a column inch. Copy should be sent in by the 20th of preceding month if proofs are required; by the 25th if no proofs are required.

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WESTERN INDUSTRY/FEBRUARY 1961

(Contracts continued)

including an order from Hughes Aircraft Co., Tucson, Ariz., for production of thermal relays for the Falcon air to air missile.

Summers Gyroscope Co., Santa Monica, Calif., follow-on orders for approximately \$600,000 from the Martin Co.'s Orlando, Fla., Div. for spring-wound gyros for use in the Navy's Bullpup missile.

Perkins Electronics Corp., El Segundo, Calif., \$350,000 for power supplies to be used in shore support and on-board submarine launching of the Polaris missile.

Ford Motor Co.'s Aeronutronic Div., Newport Beach, Calif., \$140,000 to investigate semirigid and nonrigid space structures for use at extreme altitudes from U. S. Air Force Wright Air Development Div., Air Research and Development Command.

Siegler Corp.'s Hufford Div., El Segundo, Calif., follow-on contract for approximately \$110,000 from the U. S. Navy for ground support equipment components for the Terrier missile.

Reynolds Electrical and Engineering Co., Albuquerque, N. M., \$82,308 for modifications to the underground electrical system in Technical Area I of Sandia Laboratory, Albuquerque.

Dependable Building Maintenance Co., Seattle, \$60,210 for janitorial services in the 700 and 1100 areas of Hanford Works, Wash.

Lockheed Aircraft Service, Ontario, Calif., contract from the Army's Corps of Engineers for the testing and calibration of propellant loading systems at nine Atlas missile launch sites now under construction in the vicinity of Cheyenne, Wyo.

Meany Named Commander San Francisco Ordnance

OAKLAND, CALIF. — Col. William F. Meany has assumed command of the San Francisco Ordnance District, a nine-state, \$200,000,000 defense procurement activity with headquarters at 1515 Clay St., Oakland. He succeeds Col. L. H. Harrison, USA, retired.

Col. Meany arrived from Fort Lee, Va., where he completed the Army's top procurement management course. He previously was the senior U. S. ordnance advisor to the Korean Army, after service as ordnance officer for the 5th U. S. Army at Chicago for which he was awarded the Commendation Ribbon.

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CM METEOR ELECTRIC WIRE ROPE HOIST ½ to 5 ton capacities — Compact, enclosed design. Low headroom. Continuous duty motor with thermal overload protection for heavy duty service. Precision bearings and helical gears for long life. Only 110 volts at push button control. Hook suspension; plain, geared or motor driven trolley.



CM LODESTAR ELECTRIC CHAIN HOIST — ¼ to 2 ton capacities — First truly heavy duty version of small electric hoist. ¼ ton model weighs only 51 lbs. Heavy duty self-adjusting brake, plus exclusive regenerative electrical braking. Upper-lower safety limit switches. CM-Alloy load chain. Single and three phase.

CM CYCLONE Hand Chain Hoist — ¼ to 10 ton capacities — Easy to carry. One ton model weighs only 36 pounds. Made of tough aluminum alloy. CM-Alloy load chain. High efficiency. Lifetime lubrication.

CM PULLER — "The One Man Gang" — ¼ to 6 ton capacities — Lifts or pulls at any angle. Lever handle operation. Automatic load brake holds at any point. ¼ ton model weighs only 13 pounds and fits in a tool box. CM-Alloy load chain.

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CM makes them all! So you can choose a hoist that's perfectly suited to your specific needs in a compact, rugged and safe CM design.

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Permanent Filter



C. H. Plomteau, Jr.
Shell Chemical



George Meyer
Parker Seal



L. C. Hilt
CF & I

■ **Everett Tibbetts** has been named general manager, Exact Engineering & Mfg., Inc., Oceanside, Calif.

■ **Philip S. Hill**, executive vice president Hyster Co., Portland, has been named 1961 president, Industrial Truck Association.

■ **Elvin R. Davis**, Seattle, is new general manager, Pacific Coast Operations, Bliss & Laughlin, Inc., at Los Angeles.

■ **James L. Fouch** is newly named executive vice president, Calibration Standards Corp., Alhambra, Calif.

■ **Marvin M. Harvey** has been appointed director of manufacturing, Permanent Filter Corp., Los Angeles.

■ **C. H. Plomteaux, Jr.** has been appointed manager, Shell Chemical Co. ammonia plant, Pittsburg, Calif.

■ **George Meyer** is newly named vice president, manufacturing, Parker Seal Co., Culver City, Calif.

■ **Leo C. Hilt** has been appointed assistant superintendent, Colorado Fuel and Iron Corp.'s Seamless Tube Mill, Pueblo, Colo.

■ **Harry E. Douglass**, Glendale, Calif., is newly named district manager for Southern California and Nevada for E. D. Bullard Co.

■ **W. C. Walter** has been appointed national marketing manager, Genie-Air Products, Los Angeles.

■ **Henry S. Black** is head of Consolidated Electrodynamics Corp.'s new Data Recorders Div., Pasadena, Calif.

■ **George F. Matacek** has been appointed district manager, Bee Chemical's Western Div., Gardena, Calif.

■ **Robert G. Petersen** is newly appointed Pacific Area manager at San Francisco for I-T-E Circuit Breaker Co.

■ **Frank E. Hibbard** has been named Pacific Coast Regional manager, Beverly Hills, Calif., for Bendix Industrial Controls Section.

■ **J. T. Penton**, president of California Metal Enameling Co., Los Angeles, passed away recently.

■ **John T. McGraw** is newly named director of engineering, Vard Div., Royal Industries, Inc., Pasadena, Calif.

■ **Donald Nofziger** has been promoted to regional sales manager, Pacific Fasteners Corp., Los Angeles.

■ **Warren M. Gannon** is new southern regional manager, Western area, St. Regis Paper Co., Los Angeles.

■ **B. E. Olsen**, is newly assistant manager, sheet and strip sales, Kaiser Steel Corp., Oakland.

■ **J. W. Finch** has been named sales manager, Convair instruments facility, Convair Div., General Dynamics Corp. San Diego.

■ **Robert W. Miller**, president Pacific Lighting Corp., San Francisco, has resigned as board member of Standard Oil Co. of California.

■ **H. P. Roberts** is new general manager, Siegler Corp.'s Space Systems Technology Group, Inglewood, Calif.

■ **James P. Freeman** has been named district traffic manager at Alcoa's Vernon, California works.

■ **Robert E. Stewart** has been named manager, Quality Control, General Electric's Electronic tube plant, Palo Alto, Calif.

■ **William H. Munter** is newly appointed executive secretary, Furniture Mfg. Association of California, Los Angeles.

■ **David Lewis** will serve as resident engineer, Leach Corp., Los Angeles, covering Western defense establishments.

■ **George P. Gigon**, Santa Fe Railway's freight agent at South San Francisco, is retiring after 46 years.

■ **Arthur H. Luchs**, regional sales manager, Columbus McKinnon Chain Div., San Francisco, will also represent the Chisholm-Moore Hoist Div.

■ **Albert Coverley** has been appointed production manager of MCS Corp., Temple City, Calif.

■ **Harold C. McClellan**, head of Old Colony Paint and Chemical Co., has been elected president of Los Angeles Chamber of Commerce.

■ **Dr. George F. Floyd** has been elected vice president, systems research, Bissett-Berman Corp., Los Angeles.

■ **Charles E. Ducommun**, Los Angeles, president, Ducommun Metals & Supply Co., has been named to Stanford University Board of Trustees.

■ **Ralph B. Johnson** has been installed as president of the Honolulu Chamber of Commerce.

■ **John Gates** has been named field engineer, Brenner-Fiedler & Associates, Inc., Los Angeles.

■ **Harold N. Leisen** is newly appointed field service engineer, Bendix Computer Div., Los Angeles area.

■ **Herbert Ziegler**, president Ziegler Steel Service Corp., Los Angeles, recently visited firm's Honolulu plant.

■ **J. B. Berger** has been appointed vice president and manager, Equipment Section, Calmag Div., California Magnetic Control Corp., North Hollywood.

■ **Myron C. Pogue** has been appointed Manager of Planning, Western Development Laboratories, Philco Corp., Palo Alto, Calif.

■ **Edward H. Heinemann** has been elected to Board of Directors, Summers Gyroscope Co., Santa Monica, Calif.

■ **H. Raymond Jacobus** will join Eitel-McCullough, Inc., San Carlos, Calif., March 1 as manager, Negative Grid Tube Div.

■ **Robert C. Norrie**, Kenworth Motor Truck Co., Seattle, has been elected to national board of directors, Society of Automotive Engineers.

■ **Edward T. Kenealy** has been appointed vice president in charge of production, Borden Co.'s Western Div., San Francisco.

■ **Joe T. Ator**, General Precision, Inc., Palo Alto, Calif., has been named chairman Digital Computer Committee, Data Handling and Computations Div., Instrument Society of America.

■ **Edwin H. McIntosh**, Hoquiam, Wash., has been named general manager of Georgia-Pacific Corp.'s Western lumber mills.

■ **J. Floyd Price** has replaced retiring **Howard F. Ballard** as factory superintendent, International Paper Co.'s Long-Bell Div., Longview, Wash.

■ **Denham Scott**, assistant to president of Garrett Corp., Los Angeles, has been named an associate member, Military Procurement Advisory Committee, U. S. Senate.

■ **Robert E. Carr** has been named manager, rectifier operations, Hughes Aircraft Co.'s semiconductor division, Newport Beach, Calif.

■ **Whitney Lawrence** is newly named chief chemical engineer, U. S. Peroxygen Corp., Richmond, Calif.

■ **Alton W. Beck** has been transferred from Robertshaw-Fulton Controls Co., home office to vice president, Western Operations, Anaheim, Calif.

■ **Frank C. Di Luzio**, of the AEC's Albuquerque, N. M. operations, has joined Fairbanks, Morse & Co.'s Electronics Research Div., Albuquerque.

■ **F. B. Bramhall**, engineering consultant, Lenkirk Electric Co., San Carlos, Calif., has been named a Fellow, Institute of Radio Engineers.

■ **David Lucas** has been appointed to new post of field supervisor, Western Pine Association, Portland.

■ **E. R. MacMillan** has been elected vice president operations, W. P. Fuller & Co., San Francisco.

■ **Dr. Donald Hamilton McLaughlin**, San Francisco, has been named to receive 1961 Charles F. Rand Foundation Award by Am. Institute of Mining, Metallurgical, and Petroleum Engineers.

■ **Henry E. Heilman**, vice president, International B. F. Goodrich, Los Angeles, has assumed responsibility for foreign subsidiary manufacturing and sales.

■ **Jess J. Andresen**, president, Turnkey Engineering Co., Inc., South Gate, Calif., has been elected to the Board of Electric Furnace Co., Salem, Ohio.

■ **Dr. Stanley E. Sobottka** and **Kurt E. Zublin** have joined the technical staff of Watkins-Johnson Co., Palo Alto, Calif.

■ **H. B. McCall, Jr.**, has been named manager, Seattle office, Alcoa Wrap division, Wear-Ever Aluminum, Inc.

■ **Walter J. Yuss** has been elected a vice president, General Metals Corp. and will continue at the company's Adel Div., Burbank, Calif.

■ **John S. Abel** has retired as manager, engineering department, Weyerhaeuser Co., Tacoma, Wash.

■ **C. A. Millen** has been promoted to Oakland, Calif. terminal manager, Ringsby Truck Lines, Inc.

■ **Richard B. Franks**, Seattle, now represents Diamond Chain Co. in the Northwest.

■ **Michael J. Fink** has been named vice president and general manager, Mechanical Specialties Co., Los Angeles.

■ **Everett Babbe** has been appointed to the new post of chief engineer, Temptron, Inc., Reseda, Calif.

■ **Allan Fredhold** has been elected president of Hadco Engineering Corp., Anaheim, Calif.

■ **Charles E. Lamar** and **Gordon C. Graham** have been named vice presidents, Southern Pipe Div., U. S. Industries, Inc., Azusa, Calif.

■ **Loyd E. Arnold** has been named Northwest Div. sales manager, Portland, for Consolidated Freightways.

■ **R. G. Mitchell** is newly named vice president and sales manager, Yukon Equipment, Inc., for Anchorage, Fairbanks and Southeastern Alaska.

■ **Ronald J. Hurley** has been named general manager, Acoustica division, Acoustica Associates, Inc., Los Angeles.

■ **Gerald D. Johnson** has joined the National Abrasives organization, San Leandro, Calif.

■ **Paul V. Rea**, San Jose, Calif., has been elected president, California Processors and Growers, Inc., Oakland.

■ **Eugene B. Nutter**, foundry superintendent at Alloy Steel and Metals Co., Los Angeles, has been elected a vice president.

■ **Grant E. Frezieres** is new director, research and engineering, Superweld Corp., North Hollywood, Calif.

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Practical, Down-to-Earth Welding Rod—
Alloys as they are supposed to be

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Clean metal

Strong—
Low in cracking

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WESTERN INDUSTRY/FEBRUARY 1961

STANDARD ENGINEER'S REPORT



Versatile Chevron Duraplex replaces five other greases at paper mill

New Chevron Duraplex Grease EP works round-the-clock at the Pacific Coast Paper Mills in Bellingham, Washington. This versatile grease provides a simplified program of plant-wide lubrication . . . replacing 5 other greases previously used to do the job.

"We've used Chevron Duraplex for over 2 years now," reports Machine Room Superintendent Leonard Torgeson "... it's convenient—eliminates chance of costly error, and does an outstanding job in spite of extreme shock loads, high temperature and moisture condi-

tions. We use Duraplex on over 40 different papermaking machines plus a large system of conveyor belting."

Pacific Coast Paper, a division of Puget Sound Pulp & Timber Co., produces over 90 tons of facial quality paper each day. Their MD and Powder Room Tissue brands are widely-known throughout the country.

Equipment Note: This plant's huge 16 foot Yankee Drier paper machine is the largest in the U.S., contains some 300 separate grease points. Bearings operate under extreme pressure, at

high speeds and temperatures.

Chevron Duraplex Grease — EP is the ideal multi-purpose industrial lubricant. It is suited to a wide range of temperatures, loads, speeds, moisture and extreme service.

Lubrication problems? let a technically qualified Standard Engineer solve them for you. The largest field force of lubrication engineers in the West is at your service. For this valuable free technical help, just call your local Standard office, or write Standard Oil Company of California, 225 Bush St., San Francisco 20.



STANDARD OIL COMPANY OF CALIFORNIA

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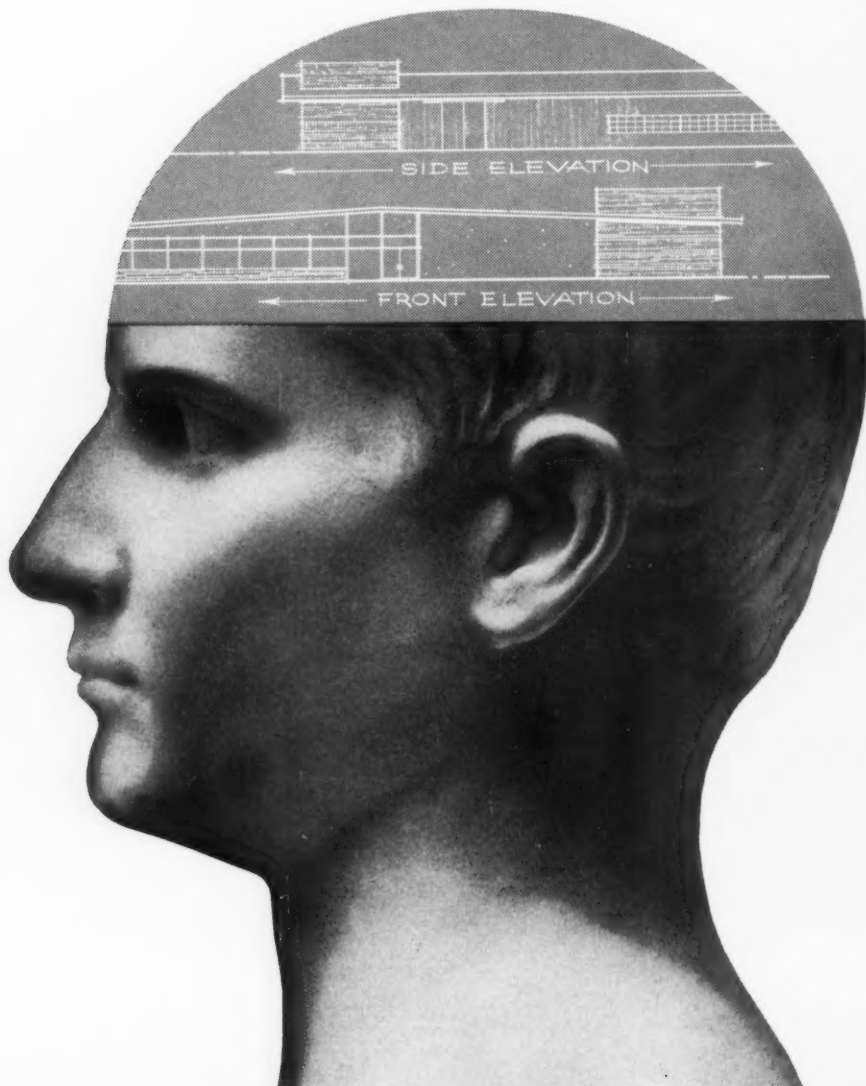
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